

INSIDE ROUNDUP: Quick Tips To Prepare For Old Man Winter

DIESEL TECH

ENGINE EXHAUST INTAKE POWERTRAIN CHASSIS MODS

VOLUME 10 ISSUE 8

TOP OF THE WORLD

**PROJECT LBZ
STANDS TALL**



BEFORE

DURING



AFTER



INDUSTRY NEWS

**WE TEST NEW DIESEL
FUEL SYSTEM**

MEET THE CUSTOM QUEEN

BECAUSE LIFE'S TOO SHORT
TO DRIVE STOCK

SINISTER DIESEL



**Sinister 58v FICM
for 6.0 Powerstroke \$649**



Our FICM improves performance and drivability, gives better horsepower and fuel economy, & the 58V output improves cold weather starting.

**Sinister Fuel Tank
Sump Kit \$164**



Featuring the BatMoWheel, our turbo increases compressor flow & boost response, has quick turbo spool up, and produces great mid and high end horsepower.

**Sinister Diesel Edition
Stage Two
Powermax Turbo \$2,099**



\$2,099

**Sinister Steering Box Support
for Dodge 2500/3500
'94-'15 4WD**



This kit helps eliminate the death wobble & steering play common in Dodge pickups and installs in under 1 hour.

from \$169

**Sinister 6.0L Powerstroke
Hot & Cold Side
Intercooler Charge Pipes \$349.99**



\$349.99

PACKAGES & SOLUTIONS



\$799

'07.5-'12 Dodge
6.7L Cummins
Head Gasket &
ARP Head Stud Combo



\$690

Basic Solution for '04-'07
Ford 6.0L Powerstroke
With Sinister Replacement
EGR Cooler



\$1050

'04.5-'05 Chevy
6.6L LLY Duramax
Complete Solution with
Replacement EGR Cooler



\$659

'03-'07 Ford 6.0L
Powerstroke
Head Gasket
& ARP
Head Stud Combo

FUEL UPGRADES

**Sinister
'01-'15 Duramax
CAT Fuel Filter
Adaptor**



from
\$129.99

The Sinister CAT fuel filter adaptor allows you to install a 2 micron CAT fuel filter without any major modifications to your '01-'15 Chevy or GMC.

*Also available for '04.5-'07 Cummins

PARTS UNDER \$200

**Sinister Race Fuel
Rail Plug
for '01-'10 Duramax
& '07-'12 Cummins**



\$45

**Sinister 7.3L-6.0L
Thermostat
Housing \$49**



\$99

**'05-'13 Ford F250/F350
Sinister Leveling Kit**

2007 Modified Grille
Fits '99-'04 Super Duty
& '00-'04 Excursion



\$199

EXHAUST KITS



**Sinister Diesel
Stainless Steel
Exhaust Kits
available for Ford,
Chevy, & Dodge**

4" - \$399

5" - \$449

Tip
Included!

**This product is capable of disabling emissions equipment. If using DPF/EGR removed tuning, this high performance product is intended SOLELY for closed-course racing use and is not street legal in ANY state. This product cannot be used on any vehicles registered or certified for highway use. This Product is NOT for sale or use in the state of California.

Check Us Out On
The Web. Scan Here
With Your Phone!



TOLL FREE: 888-995-0625 SINISTERDIESEL.COM

Sinister Coolant Filtration Systems

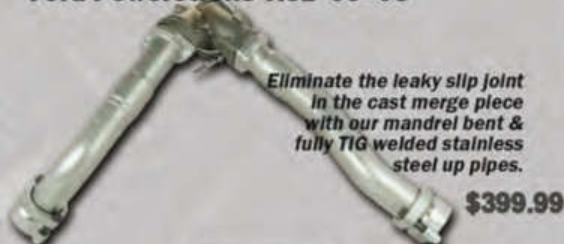


from
\$139



Our bypass-style system filters a small amount of the coolant on each pass and removes all solid particles. Install a coolant filtration kit in order to extend the longevity of your cooling system components.

Sinister Raw Up-Pipes for Ford Powerstroke 7.3L '99-'03



Eliminate the leaky slip joint in the cast merge piece with our mandrel bent & fully TIG welded stainless steel up pipes.

\$399.99

from
\$649

Sinister 6.0L & 7.3L Regulated Fuel Kit



This kit upgrades your system with an adjustable regulator, high flow fuel lines, & a 6 micron spin-on style fuel filter that integrates right into your factory fuel lines.

Sinister Replacement EGR Coolers from \$319



Tired of your EGR cooler clogging or just want to prevent future headaches? Our EGR cooler looks and fits like your factory model, but we replaced the narrow internal cooling fins with high-flow stainless steel tubing for improved reliability.

POWER PACKAGES

Dodge Power Package for 2004-5-07 5.9L Cummins

~~\$1,940~~
\$1,299



GM/Chevy Power Package for 2001-07 6.6L Duramax

~~\$1,940~~
\$1,299



Ford Power Package for 2003-07 6.0L Powerstroke

~~\$1,243~~
\$899



COLD AIR INTAKE

Sinister Diesel Cold Air Intake for '03-'07 6.0L Ford Powerstroke

\$349



Our intakes are made of mandrel bent aluminum tubing and silicone couplers for maximum air flow and durability. Plus, our intakes are manufactured in-house for the lowest variability tolerances and the highest quality control. Feed your engine the cold air it needs with a Sinister Cold Air Intake.

WARNING: REGARDING EMISSIONS LAWS: Not legal for sale or use on pollution-controlled motor vehicles anywhere in the United States. Legal ONLY for off-road competition racing vehicles and cannot be used on vehicles that are operated on public streets, roads or highways. DISCLAIMER: This product may NEVER be installed on a vehicle registered for highway or public street use. By installing this product on your vehicle, you assume all risk and liability associated with its use. It is your responsibility to make sure your vehicle complies with all federal, state, and local emissions laws. Federal and many state and local laws prohibit the removal, modification or rendering inoperative of any part of the design affecting emissions or safety on motor vehicles used on a public street or highway. Violation may result in a fine of up to \$1,000 per violation or possibly higher depending on changes in the law. All civil penalties and fines for spreading your vehicle's emissions equipment are the sole responsibility of the end user. (Due to its high performance nature, this product may void vehicle manufacturer's warranty.) Sinister Mfg. Company, Inc. is not responsible for misuse of its products. By installing this product, you release Sinister Mfg. Company, Inc. of any and all liability associated with its use. For the other applications besides off-road competition racing use we intended or implied. Depending on where you live, additional restrictions may apply. Check all applicable laws before installing or using this product. PURCHASING THIS PRODUCT, YOU MUST CONSENT TO THE TERMS OF A CUSTOMER NOTIFICATION AND DECLARATION OF LIABILITY FORM BY ELECTRONICALLY ACCEPTING SUCH TERMS AT CHECKOUT OR BY SIGNING AND FILING SAME BACK TO SINISTER MFG. COMPANY, INC. BEFORE CHECKING. Some of the products offered may have Customer-Specific Deals and are not legal for sale or use in the state of California. Free Shipping to Continental US Only. Overseas, freight, and other "Sales Taxes" are included from free Shipping. Prices are Subject to Change. Sinister Diesel is Not Responsible for Misprints or Incorrect Pricing. ***Lower 48 states only. Some restrictions may apply. Subject to change without notice. Not responsible for shipping delays beyond our control. © 2006 Sinister, Inc.



YOUR **ONE-STOP-SHOP** FOR POWER & PERFORMANCE

SPEAK WITH A DIESEL EXPERT **1-888-DIESEL-4**

FLEX-A-LITE COOLING FANS

Flex-a-lite electric cooling fans will provide you with a bolt on performance cooling upgrade for your pickup. By replacing your stock clutch fan assembly with a dual electric fan system, you can increase your fuel economy and recover lost horsepower!

FEATURES:

- Recover lost horsepower & torque
- Boost fuel economy
- Direct bolt-on design
- Faster engine warm-up
- Removes stock clutch fan assembly



FROM
\$599⁹⁵



MISHIMOTO ALUMINUM PERFORMANCE RADIATORS



FROM
\$607⁵⁰



FEATURES:

- Direct OEM Replacements
- Increased Coolant Capacity
- Increase in Fin Area
- 100% Brazed Aluminum Core
- TIG-welded to perfection
- Mishimoto Lifetime Warranty

MISHIMOTO



ARP HEAD STUD KITS

BENEFITS:

- Rated at 220,000 psi tensile strength
- Threads rolled after heat-treat
- Chrome-moly steel 12-point nuts
- Black oxide finished for extra durability
- Ford, Dodge and GM applications

ARP
automotive Racing products



FROM
\$473⁰⁸

BD DIESEL S300 TURBOCHARGERS

Put simply, you'll get more power, quicker response, cooler EGT's and lower exhaust emissions with a BD/AirWorks turbocharger!

FEATURES:

- Great for Track, Street & Towing
- Unique dual-volute turbine housing
- Improved turbine response
- Dual-action wastegate
- More power & cooler EGT's



FROM
\$1580⁰⁰



BULLY DOG TRIPLE DOG GT DIESEL DOWNLOADER*



- Added horsepower and torque
- Improved fuel economy
- Safety Defueling
- On-the-fly power level adjustment
- Four different power levels to choose from
- Easy installation (20-40 minutes)
- Free internet updates
- Monitor and display vehicle parameters (PIDs)
- Full Color display with multiple color themes

BULLY DOG



ON SALE NOW!

AIR MOMENTUM HD INTAKE SYSTEMS



FROM
\$327⁰⁰

FEATURES:

- Unique One-Piece housing
- 10-Layer Performance Air Filter
- Premium Hardware
- Power, Protection and Simplicity
- Made in the U.S.A.



MBRP
PERFORMANCE EXHAUST

- Maximum flow
- Lower Exhaust Gas Temperatures
- Utilizes OEM Hangers
- Increased Horsepower and Torque
- Easy Bolt-on Kits, "Everything you need"
- Aluminized - 3 Year Warranty
- T304 & T409 - Lifetime Warranty

MBRP SERIES LINEUP



MBRP 6.7L FORD XP SERIES FILTER-BACK EXHAUST

The MBRP SS249409 4" Dual Outlet XP Series Filter-Back Exhaust for your 2011-2014 Ford 6.7L Powerstroke is the performance exhaust of choice for the enthusiast who needs a system that can take anything that the road throws at it. This system's rugged sixteen gauge T409 construction can be counted on to withstand everything from salt to rocks, tar to grime. We have had such success with this line that we back it with a Lifetime Warranty.

FEATURES:

- 4" T409 Stainless Steel
- Installs with common hand tools
- Includes two polished 5" Exhaust Tips
- Lifetime Warranty



ONLY
\$504⁹⁹

*NOT LEGAL FOR SALE OR USE IN CALIFORNIA ON POLLUTION CONTROLLED MOTOR VEHICLES

FREE SHIPPING ON ORDERS OVER \$50
ASK ABOUT OUR **\$5 PRICE BEAT GUARANTEE**

2 LOCATIONS!
FAST NATIONWIDE
SHIPPING!



XTREMEDIESEL.COM

SCAN WITH YOUR SMART PHONE TO VISIT WEBSITE

OFFICIAL PARTS
SUPPLIER OF THE



SOURCE CODE
DT1015

Not responsible for typographical errors. Pricing subject to change without notice. *See website for restrictions

5% OFF

YOUR ORDER OF \$100 OR MORE
Valid now - 12/31/15 Restrictions apply.
See our company policy for exclusions.

DISCOUNT CODE
DIESEL5



TITAN SIDEKICK 15 GALLON COMPACT TRANSFER TANK

\$462.65 PART NO. TFT5040015

- 15 gallon capacity
- Compatible with Diesel Exhaust Fluid (DEF)
- Mounts over wheel hump
- Military grade, cross-linked polyethylene

APPLICATION: UNIVERSAL - FITS MOST TRUCK BEDS



XDP ONE HOLE FUEL TANK SUMP

\$149.95 PART NO. XD182

- Built-in Drain Plug
- No Tank Drop Installation
- Large opening for unrestricted fuel flow
- Made from Aircraft Grade T6 Billet Aluminum

APPLICATION: UNIVERSAL - FITS MOST STOCK & AFTERMARKET FUEL TANKS



AFE DFS780 FUEL SYSTEM FULL-TIME OPERATION

\$845.00 PART NO. AFE42-12031

- Bypasses OE Fuel Pump (Full-time Operation)
- Marine Grade Motor
- Clear High-Impact Polycarbonate Sight Glass
- Built in the U.S.A. with a Worry Free 2-Year Warranty

APPLICATION: 05-10 5.9L/6.7L CUMMINS



VALAIR HEAVY DUTY CLUTCH

\$367.01 PART NO. VLNMU70279-01

- 13.00" x 1.375" Stock Organic Replacement
- Premium Brass Woven Organic Facings
- HD Spring Hub
- Rated @ 400HP / 900 ft lbs Torque / 3400# Pressure Plate

APPLICATION: 01-05 DODGE 5.9L CUMMINS 6-SPEED



DAYSTAR COMFORT RIDE 2" LEVELING KIT

\$129.95 PART NO. KC09101BK

- No Metal-On-Metal contact
- Lifetime Warranty
- Made in the U.S.A.
- Top-mount Easy Install Design

APPLICATION: 94-13 DODGE 2500/3500 4WD



PPE XCELERATOR STANDARD POWER PROGRAMMER*

\$539.99 PART NO. PPE1110200

- 5 power levels of additional horsepower & torque
- Speedometer corrections
- Transmission reset and quick learn feature
- Read and clear DTCs

APPLICATION: 01-10 GM 6.6L DURAMAX LB7/LLY/LBZ/LMM



FOLLOW US @XDPDIESEL

FOR ALL THE LATEST FROM YOUR ONE-STOP-SHOP FOR POWER & PERFORMANCE

*NOT LEGAL FOR SALE OR USE IN CALIFORNIA ON POLLUTION CONTROLLED MOTOR VEHICLES

SPEAK WITH A DIESEL EXPERT 1-888-DIESEL-4 WWW.XTREMEDIESEL.COM



MORE FUEL. MORE FREEDOM.

Fuel Up When You Want To, Not When You Have To!

Whether it's a larger replacement tank, an in-bed auxiliary tank, or a US DOT legal refueling tank, a Transfer Flow fuel tank gives you the freedom to fuel your truck when and where you want! You'll save time and money bypassing those expensive fuel stations and filling up where fuel costs less.

Transfer Flow fuel tanks are made from sturdy aluminized steel and bright aluminum diamond plate, and can be installed at over 325 locations in the U.S. and Canada. Call or visit our website for an installer near you.

Get more fuel. Get more freedom. Get a Transfer Flow fuel tank installed on your truck today!



We Fuel Your Adventures.™



REPLACEMENT FUEL TANKS



IN-BED AUXILIARY FUEL TANKS



REFUELING TANKS

PHOTO COURTESY OF KELLY FROMM

www.TransferFlow.com

1-800-826-5776

info@transferflow.com



★★★★★
MADE IN
U.S.A.

BEEF. IT'S WHAT'S FOR STEERING.



Heavy Duty Tie Rod Assemblies

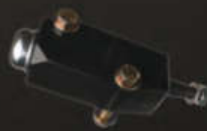
Our bigger, badder Gen2 Chevy Tie Rod Assembly will handle pretty much anything the road—or off road—can throw at you. And make sure it comes fully armed.



Extreme Duty Pitman Arm



Extreme Duty Idler Arm



Extreme Duty Idler Arm Bracket

**RARE
PARTS**®

STEERING AND SUSPENSION

888.812.9942

RAREPARTS.COM/EXTREME2

WE KNOW DIESEL WE KNOW GAS WE KNOW TRUCK PERFORMANCE



Trust Your Business to the Experts at
Diesel Performance Parts INC. - Competitive Guaranteed Wholesale Pricing,
Unsurpassed Knowledgeable Support, & the Industry's Best Manufacturers.



866.455.7788 | dieselperformanceparts.com
Diesel Performance Parts INC. | 411 Allied Dr, Nashville, TN 37211



MORE TECH. MORE TRUCKS.

DIESEL **TECH**
MAGAZINE

10 ISSUES
FOR ONLY

\$19.95

CALL **1-800-638-0135** OR GO TO **WWW.DIESELTECHMAG.COM**

Allow 4-6 weeks for delivery of first issue. Canadian & foreign add \$20 (for surface postage.)

OCTOBER 2015

CONTENTS



22



30



42



18



34

FEATURES

22 | **PROJECT LBZ PART 6**
Wrapping Up Our Latest Build

30 | **WHEELCHAIR ACCESSIBLE**
Not Your Average Conversion

42 | **EDITOR'S PICK PART 5**
Customizing The Interior



38



48



54



60

DEPARTMENTS

14 | **TALK'N TORQUE**
Inner Beauty Or Exterior Presence?

18 | **SHOP TALK**
Products, News, Updates & More

34 | **DT TESTED**
Products Reviewed

38 | **POWER OF PINK**
Custom Queen

48 | **DT ROUNDUP**
Preparing For Old Man Winter

54 | **TECH CORNER**
Power Stroke Engine Part 2

57 | **ADVERTISER INDEX**
Page Number Listings

60 | **TRUCKS NEXT DOOR**
Real Trucks On A Budget

MEET AFC LIVE

complete p-pump in-cab tuning
instant EGT and smoke adjustability
another reliable innovation from Power Driven Diesel



WHAT ARE PEOPLE SAYING ABOUT AFC LIVE?

"I am really impressed with this tuner. The install was painless and it works really well. I can go from stock and smokeless to a smoky 400hp and anything in between just by turning two knobs anyone with a 12v should be running one of these." -Cummins Forum Member JT422

"I'm loving mine. It is definitely money well spent. Everybody with a 12 valve should get one. Power Driven Diesel is definitely doing some cool stuff with 12 valves." -Cummins Forum Member smokin92

"I am very pleased with the results and would recommend the box to anybody with a mechanical truck." -Competition Diesel Member zfaylor

"I have one on a p-pumped truck and it works awesome! I would recommend it to anyone with a modded 12 valve." -Instagram Follower ldespain87

"This is definitely a game changer in the sense that it can be tuned clean until you flip the switch and bam, full power mode when you need/want it." -Cummins Forum Member alwaysdiesel

"I towed a decent little gooseneck today with about 8 ton of small bales and tuned it down before I loaded it up and it performed flawlessly. I towed up a pretty decent grade holding 65 mph for about half a mile and it got to 1050 on the egt gauge and was running at a cool clean 40psi. I loved it. "Stiffening up" the spring rate really made it nice and controllable for towing." -Cummins Forum Member cumminsrules

"Got the new AFC Live by @powerdrivendiesel and absolutely love it, recommend it for any ppumpe'd truck." -Instagram Follower dillpickle95

"I ordered an AFC Live kit...First off this thing is awesome. Everybody that has a modded 12 valve should own one. It works as advertised. I mostly wanted the kit for towing and trying to get rid of the smoke. Before I could easily peg my 1600 degree EGT gauge and with the max fueling knob turned out I can't even hit 1300 degrees. I can fine tune the smoke and throttle response for pretty much smokeless driving.... I couldn't be happier with the AFC Live system. Everybody that has a 12 valve should own one." -Email from Logan D.

We also specialize in injectors, delivery valves, turbos and compound turbo systems, transmissions, and many other performance diesel parts.
Check us out at powerdrivendiesel.com, use offer code DT20, and get \$20 off any additional item when you purchase an AFC Live kit before October 31, 2015.



www.powerdrivendiesel.com

435.962.9555

@powerdrivendiesel



HIGH TORQUE STARTERS

- **HEAVY DUTY**
- **ULTRA RELIABLE**
- **ALL APPLICATIONS**

- Easy to install
- No "Hot Start" problems
- 100% more cranking speed
- 100% more cranking power
- 2-year unconditional guarantee



HIGH OUTPUT ALTERNATORS

PATENT PENDING

- **ULTRA RELIABLE**
- **HEAVY DUTY**

- Superior Design
- Easy 5 minute installation
- 300,000 mile life expectancy
- No more charging problems
- 1-year unconditional guarantee
- Up to 300% more charging power
- Precision balanced for smooth operation

Call Today! 724-694-8290 • www.Mean-Green.com

330.695.2039 | grdiesel.com

[INTRODUCING]



Engineered
specifically for trucks
and their owners.

**50+ years of experience,
now designing and selling
precision parts!**

LML CCV Canister | Bottom Sump With Return | Duramax S300 Kits



DIESELTECH MAGAZINE

EDITORIAL

PUBLISHER

Greg Larsen

EXECUTIVE EDITOR

Brady L. Kay

TECH EDITOR

Levi Perkins

STAFF WRITERS

Austa Cook, Len F. Davidson, J.S. Hansen,
Jake Manning, Trevor Mason, Roy Sparks

ADVERTISING

ADVERTISING DIRECTOR

Greg Larsen

glarsen@dieseltechmag.com

ADVERTISING EXECUTIVES

Cayd Freeman

cayd@dieseltechmag.com

Austin Carlisle

austin@dieseltechmag.com

MARKETING

MARKETING

Riley Hoyle

PRODUCTION

PRODUCTION MANAGER

Janet Chase

PRODUCTION

Jim Donovan

LAYOUT AND DESIGN ARTIST

R.D. Dye

ADMINISTRATIVE

PUBLISHER ASSISTANT

Terri Duncan

CIRCULATION

CIRCULATION MANAGER

Yvonne Young

NEWSSTAND SALES & DISTRIBUTION

ProCirc Retail Solutions Group

IT

IT DIRECTOR

Chuck Harris

ACCOUNTING

CONTROLLER

Clayton Ward

ACCOUNTS PAYABLE

Laura Rafferty



MEMBER OF SEMA

Diesel Tech Magazine is published by Harris Publishing, Inc.
Subscribe: \$19.95 per year for 10 issues.
All rights reserved. Reproduction in whole or part without permission is prohibited.
Publisher not responsible for content of materials submitted or advertising claims.

ADVERTISING AND EDITORIAL OFFICES:

360 B Street, Idaho Falls, ID 83402

Phone: 208-542-2293 Fax: 208-522-5241

ADDRESS CHANGES:

Diesel Tech 360 B Street,
Idaho Falls, ID 83402,
800-638-0135

ALSO PUBLISHERS OF:

SnoWest - SledHeads - Houseboat -
PDB Pontoon & Deck Boat

Harris Publishing, Inc.
Founded by Darryl W. Harris
Jason Harris—President
Chuck Harris—Vice President
Ryan Harris—Vice President
Steve Janes—Vice President
Greg Larsen—Vice President
Clayton Ward—Treasurer
Janet Chase—Secretary



Copyright © 2015, Harris Publishing, Inc. All rights reserved. Reproduction in whole or in part, without written permission, is strictly prohibited.



WWW.SMEDINGDIESEL.COM

210-446-0888

Your Performance Turbocharger Source!

**Cummins 24v 110#
Valve Springs \$189**



**Cummins 24v Heavy Duty
Push Rods \$215**



**Ford 6.0 Basic
EGR Delete Kit**
\$75 EGR Delete Only



7" FB
\$182

8" GB
\$179



**Bull Dozer
Tough Cat Stacks**

TrueFlow Intake



Starting
at \$99

Cummins Drop In Turbochargers



Single Turbo Upgrades
-Great for towing & daily driving
-Faster Spool Times
--Improved fuel economy.
Starting at \$1250
Call for options & specs
210-880-1700

Larger and less restrictive than stock.
Improves airflow into the cylinders for instant
power and greater fuel efficiency. Includes
three pre-tapped ports.

**Borg Warner
S475/83/.90 T4 \$1050**



**Cummins EZ Drop-In Turbos
Only \$995**

Works great as a performance stock replacement
Billet compressor wheel.
Great for towing & daily driving.



03-07 Cummins 24v 5.9L

94-02 Cummins 12v & 24v

WWW.SMEDINGDIESEL.COM



Granted, if money wasn't a true factor, I would dare wager that most of us would prefer a truck that not only performed well, but also looked the part too. Sure, there are plenty of sleeper truck owners who genuinely love showing up at a dirt track in a stock-looking pickup and stunning the crowd. Or those weekend warriors who love to see the looks on the hot shot Camaro driver who had no idea what was under the hood of the otherwise grocery-getter pickup until he opened his big mouth. But in the real world where paychecks do count, life—especially when it comes to modifying your diesel truck—is all about compromise and one upgrade at a time for a lot of us.

So in this great debate, which is more important to you? This thought crossed my mind when I was traveling this summer. I stopped for a quick bite to eat and as I was heading in to the restaurant I noticed a lifted Ram truck; blame it on my day job. It had a great-looking customized grille, oversized tires on 24-inch wheels and some other exterior upgrades. She was a real beauty and after a quick peek I instantly ditched my plan to eat. I just had to know more about this truck.

Like I was taught in my Stalker 101 class, I sat back and waited for the driver to return to his truck. I caught him before he was able to climb inside using his automatic deploying steps and I introduced myself as the editor of *Diesel Tech* magazine. I asked him for more details on what he had done to his truck. He rambled off an impressive list of exterior upgrades, but when I asked to see under

INNER BEAUTY OR EXTERIOR PRESENCE?

the hood he sheepishly admitted it was still stock.

Now there is no right or wrong way to do a build, but I could still see disappointment in his eyes like he had let me down or something like that, which was far from the case. I was still very much impressed with his truck and I wished him good luck with the rest of his build and to keep me updated as he went along.

On the other side of this issue, I was recently in an old 12-valve Cummins that didn't look like much from the outside, yet still had the power to throw me back further in my seat than I ever thought possible. This truck would blow the doors off a lot of trucks, yet I'm guessing magazine editors don't stalk him when he's getting his lunch.

"Like I was taught in my stalker 101 class, I sat back and waited for the driver to return to his truck."

One of my favorite lines from the movie *Liar Liar* with Jim Carrey is when he's talking with his son. The boy tells Carrey's character that his teacher says real beauty is on the inside. His response, "That's just something ugly people say." That makes me laugh every time.

Do you agree? Are those with stock-looking trucks the ones going around touting that what really counts is on the inside? Because when it comes to towing and really using a truck and unlocking its true potential, you could make a strong case for why you should start on the inside first. For some reason the original manufacturers try so hard to limit these great diesel engines when they roll off the plant floor and we have a responsibility to change all that.

Of course the other side of the argument is if it's all under the hood, it can

be hard to explain to your wife where that money is really going. Yeah, you can show people in a quarter-mile why your kids are still wearing those old worn-out shoes to school, but sometimes you'd just like to visually be able to show people where your paycheck goes by doing a little something to the outside.

Again, no right or wrong way to tackle a build. At this point I think it would be better to take this debate to Facebook and find out what is most important to YOU! Inner beauty or exterior presence? What matters most? **DT**



Brady L. Kay,
Diesel Tech Editor



// 6061 FORGED
ALUMINUM CUSTOM BUILT

WHERE DO YOUR
AMERICAN FORCE WHEELS
TAKE YOU?



**AMERICAN
FORCE**

www.americanforce.com

DEALER INQUIRIES WELCOME!
MORE WHEEL DESIGNS AVAILABLE ONLINE!

Tel. 786.345.6301 • 1.888.367.1714

THE WHEEL.
REINVENTED.

WICKED
WHEEL®

COMPRESSOR
WHEELS

- 
- WW 2 Series
 - Increased boost
 - Lower drive pressures
 - Machined billet aluminum
 - Lower EGTs and faster spool
 - Ford, Dodge, Chevy and more
 - Improved power and performance
 - **NOT just a billet copy of the OEM wheel**
 - Customized designs for maximum surge protection and performance!

Accept no imitations.
www.wickedwheel.com

SCAN THE QR-CODE TO SEE IF THERE IS A
WICKED WHEEL FOR YOUR APPLICATION.
VISIT www.wickedwheel.com or give us a
call at 888-414-3457 for more information.



another original product by
Dieselsite®

Wicked Wheel® is a registered trademark of DIESELSITE, INC. and Bob Riley

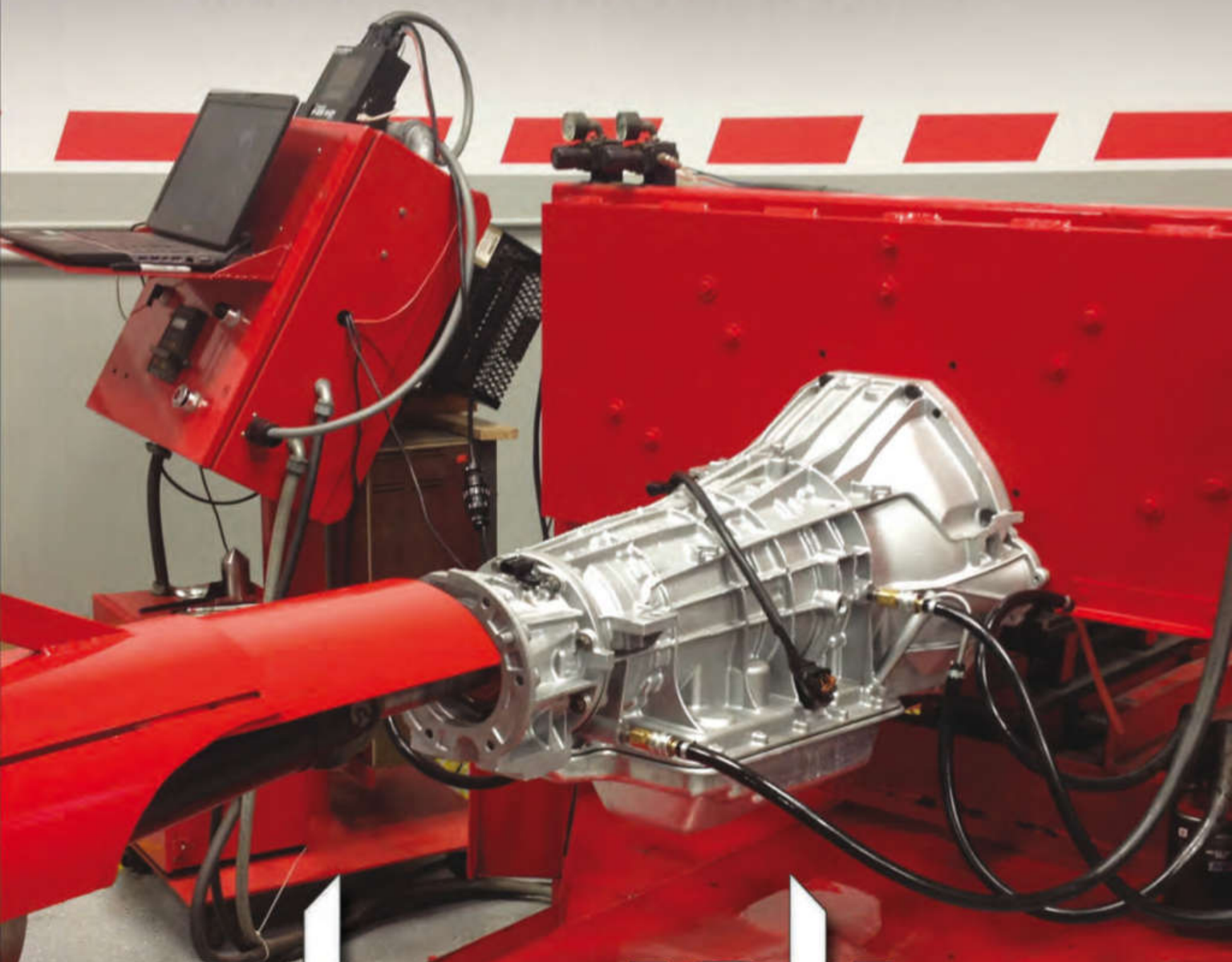
888-414-3457

DEALER INQUIRIES WELCOME

www.dieselsite.com

E40D, 4R100, & 5R110 TRANSMISSIONS FOR THE 7.3L, 6.0L, & 6.4L FORDS **ON STEROIDS.**

www.dieselsite.com



Dieselsite®

PHONE: 888-414-3457

DEALER INQUIRIES WELCOME

SHOPTALK

PRODUCTS, NEWS, UPDATES & MORE

Putting More Sting In Your Scorpion

If you've got a Power Stroke, ATS has something to show you. New for 2011-2014 6.7L Fords are their new Scorpion Turbo Systems. If you have an old stock turbo system, the Scorpion is the perfect drop-in replacement for it. You choose which ATS turbocharger you want, the Aurora 3000 or the Aurora 4000. The Scorpion gives you better performance than stock, with quicker spool times, lower EGTs and more horsepower.



Either turbocharger comes with a 45-degree housing and system to incorporate the existing factory downpipe, intake and discharge pipes. You can install the kit without cutting anything or doing any custom modifications. It also comes with all the parts you need included in the kit. Finally, the kit has stainless steel pipes and is covered by ATS's five year/500,000-mile warranty. The Aurora 3000 Kit retails for \$3,250, while the 4000 is \$3,500.

(866-209-3695/www.atsdiesel.com) DT

Increase Your Space

A.R.E.'s new TopperEZLift increases the available space under your truck cap. The lift can raise and lower any fiberglass truck cap in just 30 seconds. The lift draws its power from your vehicle's battery and only uses five to eight amps while doing it. Instantly gain 17.5 inches of additional height and give yourself more space for either camping or storage access, all without having to remove the cap.

The system can lift up to 900 pounds and seals the cap back to the truck bed once it's lowered. Self-locking actuators secure the top in place, whether raised or lowered, and the kit includes mounting brackets, hardware and a control box with all the necessary wiring and cable ties. The TopperEZLift is available now and can be found nationwide anywhere A.R.E. products are sold.

When you need to create an enclosed sleeping and storage area, camper tent packages are also available and sold separately. The tent option is constructed of durable rip-stop nylon fabric in a choice of outdoor patterns and solid colors and features Velcro attachments and two screened side windows.

(330-481-1333/www.4are.com) DT

Who Said It?

QUOTES FROM THIS ISSUE

"When the little kid across the street comes over and asks for a ride in my truck, it's really gratifying."
— Page 22

"With burly trucks and SUVs now an option, why choose a minivan when you could have a truck?" — Page 30

"I like to feel like I am driving a truck, not a beefed-up Tahoe."
— Page 38 DT

Bolt Down Your Cargo

Bullet Proof Diesel has a new bolt-down cargo solution. The fitting provides two 5/16-inch and 18-inch threaded bolt-down points that can be moved to various points along the tracks of either "e-track" or "a-track" rails. Such rails are found in various applications, from cargo vans and truck beds to semi trailers and enclosed trailers. The fitting is compatible with brand names



Keep That Juice Coming With A Clean Battery

Penray's battery cleaner and protector is just the thing to use to get your battery in optimal shape after the hot summer months. Hot weather can be just as damaging to a battery as cold weather.

Watch out for the formation of white or green corrosion where the battery cables join with the battery posts. The electrical connection can be compromised and limit the current that can reach the starter motor.

When you see corrosion at the battery terminals, just spray on the battery cleaner, allow it to work for 2-3 minutes, then wipe off the residue. Then spray on a coating of battery protector, which shields the area, seals out moisture, and prevents future corrosion and oxidation.

(800-323-6329/www.penray.com) DT



such as Ancra International, Kinedyne, and US Cargo



Control. The fittings are easily moved and



relocated with simple hand tools that any truck

owner will have handy. The fittings will be available in quantities of five for \$24.95, 10 for \$49.50 and a bulk package option of 22 pieces for \$99.95.

(888-967-6653/www.bulletproofdiesel.com) DT



K&N Acquires AIRAID

K&N Engineering has acquired AIRAID Inc. The change, which went into effect in July, means that K&N will now supply all AIRAID products, from filters and intake kits to all other components and accessories. K&N will continue to support and develop AIRAID products going forward, and many AIRAID staff have joined the K&N team to assist in this endeavor and to provide customer support. (951-826-4000/www.knfilters.com) **DT**



Fuel Injector Reflective Heat Covers

DEI has developed the perfect solution to all your hot temperature performance troubles. Their new fuel injector reflective heat covers reflect heat away from your injectors. Heat soak and vapor lock are potential problems for your engine when it's too hot outside. These covers protect you from that by utilizing high-temperature rated glass fiber material bonded to a heat-reflective aluminized material. Almost any engine configuration can be fitted with these covers, and



you will notice that your fuel injectors perform more efficiently.

Installation is simple, since all you have to do is wrap the covers around each injector and secure them with a built-in hook and fastening edge. The covers come in multiples of two, up to eight total in a pack. (440-930-7940/www.designengineering.com) **DT**

Permatex Resists Synthetic Oil

The new Permatex Ultra Synthetic RTV Gasket Maker is formulated to resist the aggressive chemical properties used in today's synthetic oils. Highly recommended for close tolerances and high performance parts, the Gasket Maker can be used as either a formed-in-place gasket maker or sealant and is also low odor, non-corrosive, non-flammable and sensor safe. When cured, it creates a flexible seal that resists aging, weathering, and thermal cycling. Temperature resistance is up to 500 degrees. (877-376-2839/www.permatex.com) **DT**



Truxedo's New Truck Luggage System

Truxedo has announced a new line of accessories for your truck called Truck Luggage. Designed to contain loose articles such as tools and supplies, Truck Luggage comes in a variety of form factors. The Expedition is a sling that attaches anywhere to the rails of the truck bed. The Saddlebag mounts behind the driver-side wheel well to hold smaller items. The B-Light is a universal battery-powered lighting system that comes in 18- and 36-inch lengths. The Truxmat is a portable utility mat. The newest additions to the line are the Cargo Retriever, which gives you easy access to out-of-reach items, and the Bulkhead Tray, which fits onto the front cab rail of the bed, providing a durable storage solution with an adjustable leveling system.

(877-878-9336/www.truxedo.com) **DT**



Air Lift's Air Suspension Kits



Air Lift's LoadLifter 5000TM air spring kit works with the existing suspension to deliver up to 5,000 pounds of load-leveling capacity

and eliminate sagging and bottoming out. This Air Lift underframe kit works with most in-bed hitch configurations. Air Lift also offers wired, wireless, and auto-



matic onboard air compressor systems to provide on-the-go control of air springs. The kit is backed by a lifetime warranty and a 60-day money-back guarantee.

(330-244-9980/www.airliftcompany.com) **DT**

SHOPTALK

PRODUCTS, NEWS, UPDATES & MORE

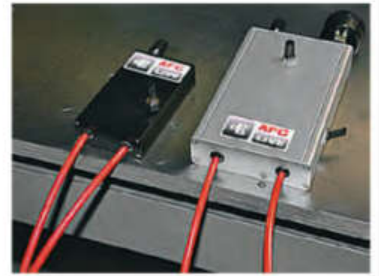
What Every 12-Valve Owner Needs



Power Driven Diesel's AFC Live system offers the finest adjustments possible to your fueling, and is currently the only kit that lets you adjust the rate at which your fuel is applied from within the cab.

Their two kits come with the control box with two knobs; one knob is for the smoke control, the other is for EGT and max fuel control. The stage 2 kit also features a gauge on the top of the unit to monitor how much pressure you're allowing through the system, as well as a switch on the side that instantly delivers maximum fueling. Normally, adjusting your fueling rate required popping the hood and tinkering with the engine. With the AFC Live, all the control is right at your fingertips.

(435-962-9555/ www.powerdrivendiesel.com) DT



New Ram Steering Box Stabilizer

Sinister Diesel has released the 2015 version of its popular steering box stabilizer for Dodge 4-wheel drive trucks. This kit joins its 1994-2014 steering box stabilizers that are currently available.



Sinister's steering box stabilizer gets rid of the so-called "death wobble" and steering play that Dodge pickups are notorious for. The kit includes all the hardware you need to install it yourself, usually in less than an hour.

(888-966-6543/www.sinisterdiesel.com) DT

New Right Hand Mounting Bracket



Wilwood Disc Brakes has announced another way to position its Combination Proportioning Valve. The company has introduced a right hand mounting bracket, available in a bundle with the valve or as a separate kit.

The kit includes stainless steel fluid tubes with pre-installed tube nuts to help facilitate installation between the valve and the Wilwood tandem master cylinder.

The mounting bracket kit retails for \$37.74, while the combination kit and proportioning valve retails for \$115.50.

(805-388-1188/www.wilwood.com) DT

KT Performance

ktperformance.net

1-855-587-3736

DEALER ACCOUNTS AVAILABLE

ALLIGATOR PERFORMANCE



THE POWER TO FEED YOUR DIESEL

WWW.ALLIGATORPERFORMANCE.COM



EDGE
PRODUCTS

RPM 1150
MPH 68
BOOST PSI 23

CTS2
\$399.00

FASS
Diesel Fuel Systems

Titanium
In Stock Now

injen
TECHNOLOGY

EVO INTAKES
ON SALE NOW



TRANSMISSION LINES
DEVIANT.RACE.PARTS 10% OFF



PROJECT LBZ



Part 6

DIESEL TECH BUILD SERIES

BY TREVOR MASON



Project LBZ has been quite the journey, both for us and for the truck itself. If we didn't have an actual record of events, you'd hardly believe that we're dealing with the same truck; it's changed that much. The truck we started with was a well-kept, if unremarkable, 2007 Chevy Silverado 2500 HD LBZ. At the time, it posted a respectable 345.5hp and 687.2ft/lbs of torque when we put it on the dyno.

Standing On Top Of The World

Wrapping Up Project LBZ

When we began the build, *Diesel Tech* Publisher Greg Larsen wanted to unlock his truck's hidden potential and really make it dependable.

"I rode in the LBZ when it was box stock and it was alright, just what you'd imagine from a typical Chevy diesel," says Larsen. "The power and ride were just okay and it wasn't a very pretty truck, either."

Just seven months later the truck has evolved to where it sits today and the owner couldn't be happier.

"One of my favorite things that stands out immediately are the N-FAB steps that help you get into the truck and of course the lift by BDS Suspension," adds the publisher. "That lift kit and the massive FOX shocks have improved the ride so much. It corners well and handles even better. Not only that, but it was so easy to get up into the mountains for the photo shoot, thanks to the Mickey Thompson tires, Mamba Wheels, and Rare Parts accessories, and seeing the rough terrain was dead simple with the Spyder headlights and Assault LED light bars."

Something else Larsen is happy about is that the truck has kept the same fuel economy all throughout the build, even after everything that has been done to it.

"People don't realize that you don't have to sacrifice fuel economy in a built truck if you do it right," says Larsen. "It'll increase the horsepower





PROJECT LBZ

tremendously and keep the same fuel economy, and that's where we're at with it, in the 18-20 mpg range."

After all we've done, there were still just a few odds and ends left that would make Project LBZ sing. We really think this truck has turned into something special, something we're proud to have bear the *Diesel Tech* name. With that in mind, we decided to make that literally happen.



Wrapping Paper

To really get the truck to pop, to have that wow factor when it's rolling down the road, we decided we needed to wrap it. When it comes to truck wraps, nobody makes a better one than ECD Customs out of Haileybury, Ontario. We spent a lot of time talking to Eric Gosselin to show him our vision of how we wanted the wrap to turn out. He in turn spent over 12 hours designing the wrap, turning our vision into a reality. All credit is due to Gosselin for making the

process so easy. Part of what makes it so easy is that after he designs the wrap, he simply sends the file electronically to a shop that installs it, who then prints it onsite.

We could think of nobody better to do the installation than Sign Pro in Idaho Falls, Idaho. We caught up with them while they were in the midst of the process. We talked to Andrew Petersen, account executive at Sign Pro, and he told us all about it. The wrap itself is essentially just a giant sticker that comes

in a bunch of different sections for easier application. But if you think that means it's easy to put on, you got another thing coming. You know how hard it is to put a screen protector on your phone without getting air bubbles or dust trapped under it? It's the same process writ large. Making things just a little bit harder was the actual design of the wrap. Petersen says, "This wrap was hard, because it hides bubbles really well. You can't see them sometimes unless the light hits it just right."

Hard doesn't mean impossible, though. As we watched, careful not to get in their way, Petersen and Bailey Whitehead, one of Sign Pro's shop techs, applied the wrap to one door over the course of about an hour. They first used strong magnets to hold two different pieces in place while they determined the best position for them. With a busy pattern like ours, you have to make sure everything's going to line up once you're done. They then started applying the wrap to the right front passenger door about halfway down and worked to the bottom. They stopped every few inches to make sure everything lay flat, without bubbles. Aiding the process was a bottle of Windex and some credit-card-sized disks that flattened the surface out as they passed over it. Additionally, Whitehead applied heat with a heat gun to get the wrap to stretch just a little to get coverage over tricky areas, like the channel that runs horizontally along the truck's side.

To continue with my screen protector analogy above, I thought this would be nerve-wracking, because those things are kind of a "one and done" type thing. If you screw it up, you have to start from scratch with a new one. Not so with these wraps.

"It's got kind of a honeycomb texture to it that lets it breathe as you put it on," says Petersen. "You wouldn't be able to apply it otherwise. It's really forgiving and durable, so you can stretch and pull it while you're putting it on."

Indeed, at various points they pulled back several inches of the wrap because it wasn't laying right and tried again. Andrew says that the wraps are specifically designed to not be super adhesive at first because it would make them impossible to put on. Once they've been applied and sit for a matter of days or weeks, that's when the adhesive really bonds to the truck and locks in for the long haul. With the whole wrap in place, it's even better than a new coat of paint. It's such a signature, eye-grabbing look. The graphics that ECD and Gosselin chose look amazing.

"I had no idea that in seven months you could take a truck that was unimpressive in most people's eyes, and turn it into something that at every intersection someone screams at me how badass it is," says Larsen. "So much of that is thanks to the wrap."



Strong Like A Rhino

One of the last things we did to the old Grandpa was get the bed Rhino lined. This was maybe the quickest "installation" of the entire build. Rhino Lining of Idaho Falls took care of everything. They taped off the entire rear of the truck and even made a little tent that only enclosed the bed. Before we headed in to watch it happen, we were warned that we needed to make sure to move around a little, because the particulate of the rhino lining would land in our hair and solidify. We got in there just in time to see the shop tech suit up and start spraying. The tailgate had been

removed and set to the side and the bed itself was bare and ready to be "painted." Once he started, it only took about a minute to do the tailgate, and about five to do the bed. Multiple coats were applied to ensure its durability, but we think the look speaks for itself.





Odds & Ends

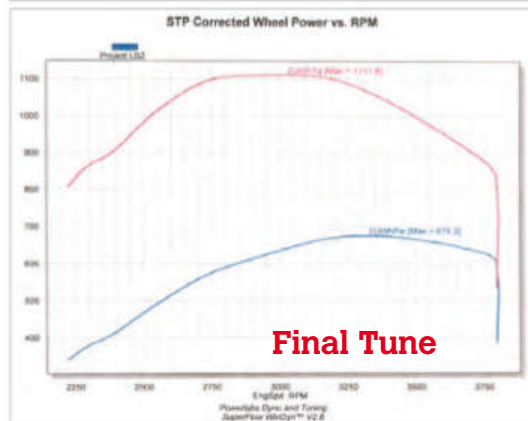
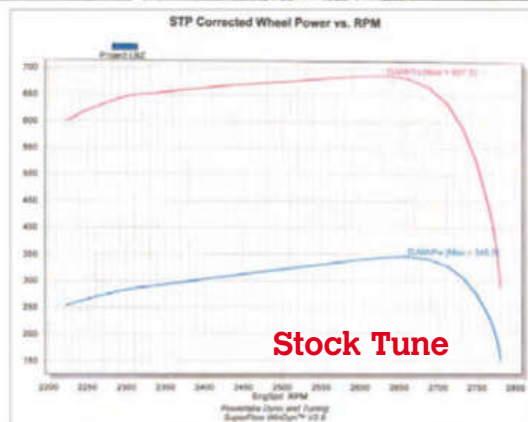
One lingering issue that finally got taken care of was the addition of the new upper control arms from Zone Offroad. In a prelude to a new feature we're working on here at the magazine, Austin Carlisle and Cayd Freeman, our two account executives, girded up their loins and did the work themselves, with a little support from Larsen. The process only took a couple hours, since they used the same bolts and brackets as the stock ones, and anything else we needed was included. As you can see in the pictures, they're much more durable and solid than the stock ones. Adding them really has added to the performance of the lift and the overall handling of the truck. After getting them installed, we made sure to get it aligned properly so that the ride was as smooth as possible.

Put A Bow On It

Well, after seven months of work, we're finally done. We owe a ton of thanks to Custom Auto for all the time they spent installing the new engine parts, the transmission, the lift and everything else. We also can't say enough about how great the exterior looks, thanks to (obviously) ECD Customs and Sign Pro, but also to Bushwacker's fender flares, Flight Fab's traction bars, Status's grille, Iron Cross's bumpers and the Retrax bed cover. We've done everything we set out to do with this build and it's in the best shape we could make it. One thing still had to be done, though: the final tune.



You have to wait and do the tune as the very last step, because any other tiny modification can change how things handle. At the outset, we set a goal of breaking 650hp. We were confident that with all the upgrades we planned, we'd have no trouble achieving such a number. We're pleased to announce that after everything we've done, and after the final tune was performed at Adrenaline Performance in Shelley, Idaho by shop owner Cam Hulse, our beloved "Grandpa" is now sitting pretty at 675.2hp and 1111.8 ft/lbs of torque. We couldn't be happier with how it turned out.



PASSION for PERFORMANCE



Since the very beginning SCT has been a company built on a passion for performance.

The X4 and Livewire TS+ products are no different. From our Pre-loaded tunes to our renowned Custom Tunes we're sure to help fuel your passion for performance.

See More at: SCTFLASH.COM



www.sctflash.com | 888.821.4851

Not legal for sale or use in California on pollution-controlled vehicles.



SOURCES:

Ace Powder Coating
208-528-7357

Adrenaline Performance
208-357-5603
www.adrenalineperformance.net

Alligator Performance
866-255-7212
www.alligatorperformance.com

Amsoil
800-956-5695
www.amsoil.com

Automotive Racing Products
800-826-3045
www.arp-bolts.com

Assault LED Lighting
602-708-1380
www.assaultledlighting.com

BDS Suspension
517-279-2135
www.bds-suspension.com

Bully Dog
877-284-5939
www.bullydog.com

Bushwacker BodyGear
800-234-8920
www.bushwacker.com

Custom Auto, LLC
208-522-7166
www.facebook.com/
CustomAutoLLC

DRP Turbo
208-719-0112
www.deviantraceparts.com

Dynomite Diesel Products
360-794-7974
www.dynomitediesel.com

ECD Customs
705-825-1063
www.ecdcustoms.com

Evans Cooling System
610.323.3114
www.evanscooling.com

FASS Fuel
636-433-5410
www.fassride.com

Flight Fabrications
330-715-4266
www.flightfabrications.com

Fox
800-369-7469
www.ridefox.com

Iron Cross Automotive
918-227-7433
www.ironcrossautomotive.com

LEDGlow
856-768-5700
www.ledunderbody.com

Mamba Wheels
800-645-3878
www.mambawheels.com

Mickey Thompson Performance Tires & Wheels
330-928-9092
www.mickeythompsontires.com

N-Fab
866-806-6322
www.n-fab.com

Performance Accessories
928-636-7080
www.performanceaccessories.com

PML Covers
310-671-4345
www.yourcovers.com

Rare Parts
800-621-2005
www.rareparts.com

Ready Lift
877-759-9991
www.readylift.com

Retrax
1-800-206-4070
www.retrax.com

Rhino Linings Of Idaho Falls
208-529-3234

Side by Customs
435.230.0370
www.sidebycustoms.com

Sign Pro
800-939-8540
www.gosignpro.com

Sinister Diesel
888-966-6543
www.sinisterdiesel.com

Spyder Auto
626-934-8884
www.spyderauto.com

Status Grilles
775-677-8511
www.statusgrilles.com

S&B Performance Filters & Intakes
909-947-0015
www.sbfilters.com

Zone Offroad
888-998-9663
www.zoneoffroad.com



"The powertrain is unreal," says Larsen. "Our goal was 650hp and we easily broke that due to the compound turbos by DRP, the Dynamite injectors, the Sinister exhaust, and the custom-built transmission."

He continues to wax poetic about his new pride and joy.

"Looking back at the outset of the build, you ask yourself, 'Is this worth the hype?' It's built up so much in your head that you start second-guessing yourself. But when the little kid across the street comes over and asks for a ride in my truck, it's really gratifying. The kid's dad has a brand-new '15 Chevy, and he wants a ride in MY truck? That's awesome."



Vision Of The Future

So what's in store for Project LBZ now? It's still up in the air, honestly. At the very least we're planning on taking it to SEMA in November, so keep your eyes open. But there are also trails to ride, trailers to pull, and dynos to dominate. Let's let Larsen have the last word. It's his truck, after all.

"It's cool how you can take off into the woods, then come back and power wash the truck and the wheels, and you've got a show truck at the ready," says the publisher. "That's the best part about the build. It's usable. The point wasn't to be a race truck; the point was to be a daily driver and anything else we needed it for. Pulling a horse trailer or snowmobile trailer, it tows anything like a dream. This truck was definitely a diamond in the rough." **DT**

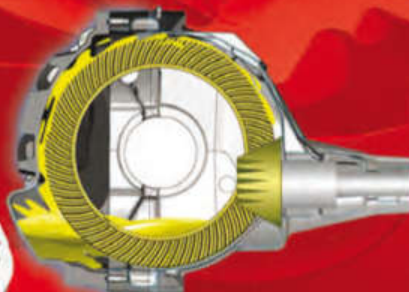


CAST TO COOL

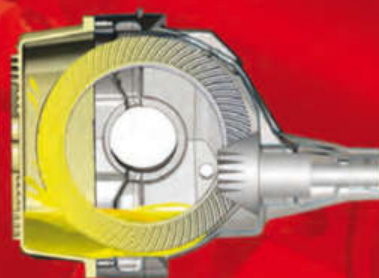
WHAT'S THE DIFF?



- Engineered cover design keeps oil on the gears
- Extra capacity sump located at bottom for gears to pick up oil
- Internal and external cooling fins
- Stainless steel allen head cap bolts, fill plug
- Magnetic drain plug
- Gasketless cover has integral re-usable Viton O-Ring



BD DIESEL



COMPETITOR

Other differential covers are large and bulky resulting in lubricating oil being flung off the ring gear. BD's design deflects the oil back onto the ring gear and into the pinion gear for cooler longer life.

THE EASIEST TRANSMISSION MOD YOU CAN MAKE!

- Aluminum pans
- Increase oil capacity
- Cast aluminum construction
- Heat-dissipating fins increased rigidity prevents case twisting
- Includes a magnetic drain plug and temperature sending unit port



High volumes of cool transmission fluid equate to long transmission life

DRESS UP YOUR 12-VALVE 5.9L CUMMINS MOTOR

- 1988-1998 12V Dodge Cummins
- Made from cast aluminum
- Black powder coated
- Machined fin tops
- Replace the OEM valve covers
- Come with new gaskets
- Sold separately or in a set of six



5.9L VALVE COVERS



www.BDDIESELPERFORMANCE.com | 1-800-887-5030



Two Wheels Meet 4WD NOT YOUR AVERAGE CONVERSION

You're standing in the Wal-Mart parking lot loading your groceries when a wheelchair-bound man rolls past, headed a few spaces farther down.

He's headed for that garish purple minivan, you think sympathetically as you slam your door closed. I'd hate to drive one of those conversion vans, but at least he can still get around.

He stops alongside an oil black monster of a diesel truck.

Must be wistfully admiring that GMC Sierra, poor fellow, you muse as you open your door.

Then the man pushes a button on a remote control and the truck's entire door lifts up like a gull-wing, leading the way for a hydraulic lift to whisper into place in the narrow space between the truck and the minivan. With practiced ease, the man centers his chair on the lift and is carried into the truck.

You're still standing there, jaw hanging, as the engine snarls to life and he backs up past you, driving away with an ironic salute. You can bet he's thinking, *Poor fellow, he drives that beater truck.*

GROWING IN POPULARITY

Well, you don't see that every day!

In all actuality, you might be seeing this every day before too long. All Terrain Conversions, a company based out of Markle, Ind., is doing its best to give any wheelchair-bound man or woman more vehicle choices than only the converted vans that previously dominated this niche of the industry.

With burly trucks and SUVs now an option, there's a whole slew of reasons why you should pick the design that originally founded AT Conversions and beats out your average converted van in countless ways, besides the obvious point—why choose a mini-van when you could have a truck?

For one, these trucks and SUVs have more undercarriage clearance so you can climb steeper grades and handle curbs without hearing that awful scrape from overestimating your rig. Because they don't have low profiles like a van, you can also enjoy a more peaceful, quiet ride without the extra road noise. And if you like camping, fishing, hunting, or romping about in the outdoors, you'll be glad to hear you can still go off-roading—and can even tow your boat or trailer.

BETTER THAN EXPECTED

The conversion process all All Terrain Conversion vehicles undergo actually increases their safety rating, and won't cause you to sacrifice on fuel mileage like you'd think—while converted vans reduce mileage by 25 to 30 percent on average, these conversion vehicles will only affect fuel mileage by 10 to 15 percent.

The gull-wing-style door protects you from the elements while you're loading and unloading, and the entire load time only takes 25 seconds. Last, but not least, the platforms can accommodate just about any mobility device, from the lightweight manual chairs to the heavy-duty power chairs.

DIESELS AND BEYOND

All Terrain Conversions sells a variety of converted GM trucks from 2008 to present, including the Chevy Silverado 1500 or 2500 and the GMC 1500 or 2500. Suburbans, Cadillac Escalade ESV, and Yukon XL are also options. All of these models can convert the driver or passenger side.

What about pre-owned trucks? Say you or a friend recently had an unfortunate accident and now have to make the difficult adjustment of using a wheelchair, but you don't want to give up your favorite diesel.



By Austa Cook

That's okay! All Terrain Conversions also offers unique customization conversion lifts for other makes and models, but depending on your setup this might increase production time and cost. Make sure to contact one of its local dealers so they can discuss the conversion possibilities for the dimensions of your specific truck.

HOW THEY DO IT

All Terrain Conversions starts by giving the truck a 3-inch body lift. Next, they cut the floor down on the converted side—whether it's the driver or passenger side—and lower the floor there. The hydraulic lift system is then installed, and the great news is, the team will actually put the OEM seat on a seat base that rolls in and out of the truck, so anyone can still use the original seat.

Modifying a personal truck was actually how All Terrain Conversions first got started. Five years ago, the future company's CEO, Steve Kitchin, was just getting ready to buy a new wheelchair-accessible vehicle. Having already owned a minivan for 10 years, he just couldn't bring



himself to buy another one when what he really ached for was a truck. After teaming up with an engineer friend and a few others, brainstorming some ideas, and taking measurements, this team built their first converted truck.

"The first day I was able to drive my new truck, I couldn't stop smiling and I felt like I had gotten a piece of myself back," Kitchin recalls. "Since then, I have used my truck to haul things, help a friend move, tow a trailer and plow through two feet of snow to pull someone out of a ditch. It feels good to be able to help myself and others."

"Steve had no intention of turning it into a business," explains Trent Bradburn, president of All Terrain Conversions.

"But it was such a great thing he wanted to share it with other people, because the only thing out there was minivans. Well, now there are four-wheel-drive trucks."

IMPROVING ON AN IDEA

Since that first build, several design tweaks and improvements have made All Terrain Conversions into the exceptional company it is today. Largely owned and operated by wheelchair users, you could definitely say these folks know what it's like to live in a world where things they previously enjoyed weren't yet made wheelchair accessible.

This company is working hard to revolutionize the conversion vehicle market so they can make it possible for sports- and outdoor-lovers to not have to give up the lifestyle they love because they use a wheelchair. With empowerment and passion like this, you just can't go wrong.

And you can bet your life's savings that no one's thinking, *Poor fellow*, when one of their customers drives by. **DT**



FOR MORE INFORMATION

All Terrain Conversions
260-758-2525
www.atconversions.com

TUNERS



**Edge CS2
Juice with Attitude™**
\$979

PPEI AutoCal™
from \$715



X4 SCT™ \$399

EXHAUSTS



MBRP INC.
PERFORMANCE EXHAUST
FLO-PRO
DIAMOND EYE
afepower
SINISTER DIESEL

MKM

MKMCUSTOMS.COM

FUEL PUMPS

AirDog II-4G
for Ford, Chevy & Dodge



**Fass Titanium Series
Fuel Air
Separation System**
for Ford, Chevy & Dodge



SOLUTION KITS



**Sinister
Complete Solution**
for 2003-07 6.0L
Powerstroke
from \$690

TURBOS

**BD Diesel
Turbo Thruster II**
for 2003-07 6.0L
Powerstroke



**Fleece Performance
63MM Holset
Cheetah Turbo**
for 1994-98/2003-04 5.9L
& 2004-5-12 6.7L Cummins



**BD Diesel
Super Max Turbo**
for GM Duramax 2001-04 LB7,
2004-05 LLY, & 2006-07 LBZ
\$2633



POWER PACKAGES



**Ford
Power Package**
for 2003-07 6.0L
Powerstroke
~~\$1,249~~
\$899



**GM/Chevy
Power Package**
for 2001-07 6.6L
Duramax
~~\$1,940~~
\$1,299



**Dodge
Power Package**
for 2004-5-07 5.9L
Cummins
~~\$1,940~~
\$1,299

888-995-0625 MKMCustoms.com

injen
TECHNOLOGY

EVOLUTION
AIR INDUCTION SYSTEMS

FORD SUPER DUTY

Visit us at www.injen.com or call (909) 839-0706

EVO 9002

2008-2010 F-250/F350
6.4L (TD) POWERSTROKE
+23 H.P.
+53 FT. LBS. OF TQ



EVO 9003

2011-2015 F-250/F350
6.7L (TD) POWERSTROKE
+19 H.P.
+52 FT. LBS. OF TQ



aFe POWER

DFS780 Diesel Fuel System

Big news is heading our way! advanced FLOW engineering (aFe) has been working on its DFS780 Diesel Fuel System for nearly four years and it's now available, which means it's also available for us to test. Note the Cummins system is available now with the Duramax version close to being released to the public and plans for Power Strokes are in the works as well. Simply put, aFe has all diesel enthusiasts—regardless of their emblem—buzzing with anticipation.



How It Works

The diesel fuel in your truck contains contaminants, water and air/vapor, which reduce power and can damage your injectors. The DFS780 is a patent-pending system capable of removing power-robbing entrained air, water and contaminants. It also boosts fuel pressure, ensuring constant availability for the

high-pressure transfer pump, improving throttle response and horsepower at all RPMs.

Each DFS780 system includes a mounting bracket that is specific to the exact year and model of your truck, so you don't have to worry about it being one of those universal type products which typically translates to problems with the installation. aFe is focusing on not only providing a quality fuel system, but also wants installation to be as simple as possible.

aFe Tour

We traveled to southern California to see first-hand this new fuel system that was installed on a 2009 Chevy LMM Duramax. Before getting to our test, we first took a tour of the aFe campus with Marketing Manager Josh Biggers. Those who think this is just an intake company would be pleasantly surprised at all this California-based company has to offer. There have to be well over 3,000 SKUs at aFe headquarters that include intercoolers, turbos, exhaust systems and of course intakes and a whole lot more.

Dependability

Following the tour Josh introduced me to Special Projects Director Ryan Takashima who is one of the leads on this project and was anxious to tell me all



about the DFS780.

"We started with the motor because when doing our research, the biggest problem we heard from consumers with other systems is motor failure," explained Ryan. "We realize we're late to the market and not the first, so we have the advantage of looking at our competitors and manufacturing a better system. The DFS780 was designed from the beginning to eliminate weaknesses found in other fuel transfer systems."

The Italian marine-grade motor with Viton seals was just the beginning; aFe also created a system that is mounted vertically and the entire system is plug-and-play (no cutting or modifications to the fuel lines). Plus the supplied wiring harness utilizes 10-gauge wire with Deutsch connectors.

"There's no cutting the fuel lines and we also don't have quarter tank issues like our competitors so we've eliminated the fear of never letting your fuel get below a certain level," added Ryan. "And because it's all plug-and-play, it's revers-



the difference of what it feels like to drive the GMC with and without the new DFS780 system.

I noticed the biggest difference in power when I got on the Interstate and really put my foot into it. In fact I joked with R&D Shop Supervisor Danny Kempf on

ible. You can put the truck back to stock and remove our system if you decide to sell your truck."

Seeing Clearly

Other unique features include a sight glass so you can visually check fuel conditions, plus aFe was able to retain the stock fuel filter so you have double filtration and you also still use the stock fuel heater.

DMAX Testing

On our test with the LMM Duramax, the truck was rigged with a toggle switch inside the cab so you can physically feel

the test ride—who, along with Director of Engineering Ken Zeller, helped develop this project—that they should make the toggle switch an option for owners so they can impress their friends and show them what a difference it makes.

Packed With Info

The all-inclusive kit comes with the mounting bracket specific to your truck, along with a USB thumb drive that includes installation videos, a digital aFe catalog, instructions and a lot of other useful information.

Again, because this is not a universal, one-unit-fits-all type of system, aFe is tak-

ing the time to develop specific kits for the different models of trucks. Currently the DFS780 Diesel Fuel System is available for all Cummins trucks from 2005 to 2010 with newer Ram trucks to follow soon along with the release of systems for 2001 to 2010 Duramax trucks with Power Strokes to follow shortly.

AFTERMARKET 94

| | |
|---------------------|--------------|
| Installation | 18/20 |
| Function | 49/50 |
| Durability | 9/10 |
| Design | 10/10 |
| Price | 8/10 |

951-493-7100
www.afepower.com

The take away on the new DFS780 is that aFe has released a new and improved diesel fuel system that has been designed as an improvement over some of the issues the competitors with existing products currently have. With an easier install at around two hours and improved features, it looks like aFe is already off to a great start. The system starts at around \$850 with more versions to be released soon. —Brady L. Kay, DT Editor **DT**

23 Miles Per Gallon...

Into the Shop getting
10 Miles Per Gallon-

- DPF Delete Kit
- GearVendor Overdrive
- Gauges

23 MPG out the door -
Another satisfied
Ford truck owner

Call Us Today:
770.949.7191

Tech 770.949.7191 • eMail ShoGuy89@aol.com • Fax 770.485.9738 • Online FordSpecialists.com • Mableton GA 30126

"FPS works on
Fords Exclusively!"

Prices subject to change. Parts subject to availability. Some items intended for off-road use only. Ask for details on this and warranty info. Not affiliated with Ford Motor Co. Independently owned & operated. All vehicles shown are owned by customers of Ford Performance Specialists. Items that modify vehicle emissions control systems without CARB Certification are illegal for sale or use in California.

BOLT Coupler Pin Lock



Unless you want to run the risk of having your boat pass you on the highway, every trailer needs a coupler pin to ensure the coupler stays on your hitch. The math doesn't get any simpler than that. But instead of going with the cheap coupler pin that came with your trailer, this is where BOLT Locks comes in.

Face it: we live in a world today that requires locks. I grew up with a simple coupler pin that

TOOLS

90

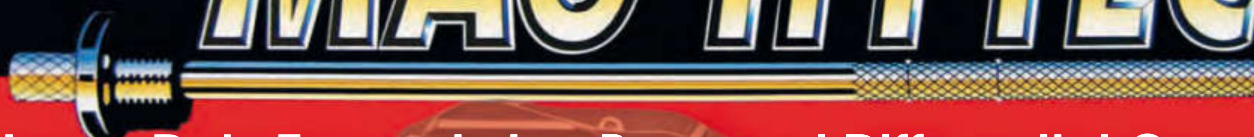
| | |
|------------|-------|
| Portable | 20/20 |
| Function | 47/50 |
| Durability | 8/10 |
| Design | 8/10 |
| Price | 7/10 |

877-251-8798
www.boltlock.com

I just slid out each time I unhooked, but those days are gone. By far the best part of this locking stainless steel coupler pin is that it can be set to your current truck key. Simply insert your truck's ignition key into the BOLT lock, turn it once and the lock mechanically and permanently learns the key code. The weatherproof lock retails for \$29.99 and at that price I think it's worth it to not have to carry around an extra key just for the coupler lock. BOLT offers a full line of locks that is worthy of a closer look.

—Roy Sparks,
DT Magazine **DT**

MAG-HYTEC



Heavy Duty Transmission Pans and Differential Covers

- ⇒ Magnetic drain plugs
- ⇒ Cast Aluminum A356-T6
- ⇒ Tapped for temp. probe
- ⇒ Longer service intervals
- ⇒ Magnetic dipsticks
- ⇒ 25 To 50° Heat reduction
- ⇒ ARP O-rings most application
- ⇒ Quicker, cleaner maintenance



Often Copied,
Never Duplicated!
818.786.8325

www.mag-hytec.com



ON ROAD – OFF ROAD – MARINE



Keep Your Diesel Moving!

We offer the most technologically advanced diesel fuel additives in the industry. Our complete line provides year-round protection for all diesel powered vehicles. Keep your engine running at **peak efficiency and performance** with premium Stanadyne diesel fuel additives.

Stanadyne Diesel Fuel Additives will:

- Restore and improve engine horsepower and torque
- Improve engine fuel economy 4% on average and as high as 10%
- Clean, lubricate, and protect the engine's fuel system
- Help the engine start faster and run smoother
- Help remove water from fuel and prevent fuel system corrosion

Learn more about Stanadyne additives at: stanadyneadditives.com

STANADYNE[™]
Fuel Additives

Stanadyne Fuel Additives is a brand of CLARCOR Inc. or its affiliates.

The CUSTOM QUEEN



"I have always been a Ford girl," Bree Jolley states matter-of-factly. "It's what I've grown up with and loved."



As far back as she can remember, this Rigby, Idaho, native has been into diesels, and for good reason. As she points out, "Diesels are different; you can modify and make them big, mean and custom unlike anybody else's."

Her mother, Moria Robison, will tell you that years ago when the other kids were all reading teen magazines and taping up posters of Justin Timberlake, Bree was reading car and truck magazines and taking pictures of custom trucks.

*LIFE'S
TOO
SHORT
TO DRIVE A
BORING TRUCK*



"As we passed vehicles on the free-way, I could tell the make and model of each one," she laughs.

Bree's love for the diesel industry has always been something of a mystery to Moria, who—being a stranger to what's under the hood herself—has no idea where her girl picked up such a burning passion.

"Nobody believes we're related due to the fact we are complete opposite in likes and interests," Bree wisecracks.

Perhaps this won't come as such a surprise, however, when you meet Bree's grandfather, Rand Robison. This man, the same idol who taught her how to work hard and become self-reliant, was also the one who originally introduced her to Fords years ago. Rand always had Fords all through Bree's childhood (and still does), and is part of the reason she has such a strong attachment to Ford models. But this brand loyalty goes deeper than tradition with Bree.

FORD LOYAL

"I pick Ford because it feels how a truck is supposed to feel," she says. "Solid, big, roomy, comfortable and plenty of power. I like to feel like I am driving a truck, not a beefed-up Tahoe."

And her truck is anything but a beefed-up Tahoe. Bree sits behind the wheel of a pearl white 2011 Ford F350 Super Duty, a model notorious for being a rough and ready workhorse of a truck. A frequenter of PowerTech Diesel in Idaho Falls, Idaho, Bree knows the staff and the staff knows Bree. They're actually the ones who recommended we spotlight her in our magazine.

"I have always crawled under the hood and worked on my own stuff even to this day," Bree says, and whether she's looking for a specific part or needs advice for an install for improving her daily driver, this is the shop she heads off to. The owner of PowerTech, Brent Willsey, talked Bree into a lot of the modifications that have further solidified her truck into the impossible-to-ignore beast it is.

"I just had to throw in some of my own twists to make my truck unlike any other 6.7L on the road," she adds.

BUILT FOR BREE

It all started with a desire to make this truck her own while ushering in power gains and increased drivability. This led to quite a list of modifications that turned her Ford into the beaut it is today.

Bree installed an H&S 64mm complete

single turbo conversion kit, which replaced the factory turbo-charger, exhaust manifolds, charged air piping and intake piping. She also installed a dual CP3 fueler for greater output and maintained rail pressure to increase horsepower, and paired this with a FASS fuel pump to ensure there was no fuel contamination that could, among other things, lead to less reliable performance. Bree also chose King's 2.5 res shocks and Top Gun front and rear traction bars, which are designed to not only reduce axle wrap-up but also allow suspension articulation.

An installed ATS rear differential cover now holds more fluid and keeps the running temperatures down while also nicely lubricating the ring, pinion and seals. Bree also bolted a Carli stabilizer shock onto the factory Fork draglink for maximum turning radius and tough-to-beat steering control. By installing an S&B air intake, she was also able to draw in that greater airflow for increased horsepower.

ADDED TOUCHES

Because there are a lot of benefits that come with including a dual exhaust, one was installed with an eye toward waking up that Super Duty diesel performance a little more.

You could say this truck gives a big impression both coming and going, thanks to the front and rear Fusion bumpers with Rigid LED lights. And now that she has a Titan 50-gallon fuel tank, Bree has the extra capacity for getting wherever she wants to go in her daily driving without worrying about what's in the tank.

The bulk of this truck and all of these modifications sit on 37-inch Toyo MT tires and 22-inch American Force aluminum wheels, and even more aggression was teased out of the truck's look with a 6-inch lift by Top Gun Customz.

The modifications so far have been extensive, but we haven't even gotten to the outside bits yet. While the interior mods prove what Bree's focus is, the show on the outside is the perfect statement of her unique style.

A 52-inch Rigid curved LED light bar on the windshield will draw anyone's eye, and once they look past that they'll be quick to note the painted-in mirrors and Royalty Core grille, which boasts a custom JJ Trucking logo in the center. A Royalty blue dash kit gave her interior some flare, while nobody could miss the painted-in white headlights with two more LED-lit JJ Trucking logos on the side markers. With painted-in emblems and LED smoked tail lights and cab light, you just can't forget Bree's truck once you see it.

Juan Gonzalez from All Season Detail in Idaho Falls, Idaho, made sure to make it that way—he's the only guy Bree trusts to detail her vehicles because of the quality of his work.

MADE TO PERFORM

Take a deep breath. That sums up the majority of the modifications done so far. So what are the after effects of this exciting installation spree?

Bree says, "All modifications that have been made have been a significant improvement as far as performance. It puts out 637.6 horsepower to the rear tires and 1150 ft/lbs. of torque."

For towing trailers, the second big thing she uses her truck for, this is awesome news. With such satisfactory results, Bree can say, "I love the power behind a diesel motor; it gets you and whatever you are hauling where you need to go without a struggle."

Through all the mod work, her husband, Jake Jolley, continues to be her big inspiration. These two get along like a Ford and a Power Stroke.



There's a good chance that Bree Jolley's love of diesels will be passed on to her daughters (From L to R) Brenley, Lexie and Taylie, who are already showing an interest in their mom's passion.



SOURCES:

All Season Detail

www.allseasondetail.com
208-709-4375

American Force Wheels

786-345-6301
www.americanforce
wheels.com

ATS Diesel Performance

866-209-3695
www.atsdiesel.com

Carli Suspension

714-532-2798
www.carlisuspension.com

FASS Fuel Systems

636-433-5410
www.fassride.com

Fusion Bumpers

888-779-3377
www.fusionbumpers.com

H&S Motorsports

www.hs-motorsports.com

JJ Trucking

208-681-5732

Kings

714-530-8701
www.kingshocks.com

PowerTech Diesel

208-524-6110

Rigid Industries LED Lighting

855-760-5337
www.rigidindustries.com

Royalty Core

541-343-3643
www.royaltycore.com

S&B Filters

909-947-0015
www.sbfilters.com

Titan Fuel Tanks

800-728-4982
www.titanfuel tanks.com

Top Gun Customz

865-681-3008
www.topguncustomz.com

Toyo Tires

800-442-8696
www.toyotires.com

"Nothing he owns or has ever owned has been stock or not customized to his liking. He enjoys customizing my truck as much as I do," she laughs.

Together, Bree and Jake started their own trucking company five years ago (hence the JJ Trucking logos). Jake was originally the sole driver but now they boast six semis in their personal fleet. "Go big or go home" is evident in all the trucks the Jolleys own, as the semis are just as customized as their personal trucks. Nothing is stock anywhere, from the stacks to the orange-and-white paint scheme to the custom logos. Five years from the company's start, Bree is still handling all the bookkeeping while Jake manages the semis as their drivers work hauling water to North Dakota.

Obviously, both Bree and Jake get a kick out of being different. We'll have to see if their three little girls grow up to show the same panache for customizing diesels. After all, they are the daughters of the woman who says point-blank, "I don't do minivans."

LOOKING FORWARD

Now that so much has been done to her daily driver, Bree says that any future mod plans "depend on just how crazy I want to get with this truck."

One of the things Bree will undoubtedly tell you if you get the chance to talk to her is to never be afraid to put your own style into whatever you drive.

"Customize it to your liking and don't let anything or anyone hold you back or

tell you different," she firmly says. "Let your style shine no matter what your taste may be."

After all, Bree Jolley will be the first to point out to you, "Life is too short to drive a boring vehicle."

Amen, sister. Amen. **DT**



UNPARALLELED PROTECTION



- LONGER DRAIN INTERVALS
- ESTER-BASED FULL SYNTHETIC
- LOWER OIL TEMPS
- 1200 PPM OF ZINC



800.624.7958 | REDLINEOIL.COM

EDITOR'S PICK PART 5

INTERIOR MAKEOVER



Although I've never really been too excited with the name we selected for this build, the actual project has gone above and beyond what I could have imagined before getting started. Despite my best efforts, I couldn't think of anything more creative than "Editor's Pick" to describe a build that is designed to reflect me as the editor of *Diesel Tech* magazine and the upgrades and aftermarket parts I feel are ideal in creating a great all-around daily driver.

The journey started with a stock 2010 Ford F350 Super Duty in January with plans for it to end as a SEMA truck at the Las Vegas Convention Center in November. Not bad for its first year, huh? Over the last few months we've more than doubled the horsepower on the 6.4L Power Stroke, dramatically improved the exterior and added a truck load (literally) of both practical and non-practical upgrades (I still argue the train horns from HornBlasters are

practical and a must for any truck).

In the last installment of this build we'll recap the entire project, but for now we're going to focus on those last final touches to help put our project truck over the top.

WHAT'S NEXT?

I love showing off my truck and I have no problem talking details to the guy who is willing to wait for me outside of Home Depot just to see what's under the hood. But as great as the exterior looks (that of course is only overshadowed by how well it performs), I was always a little uneasy about showing people the inside of the cab. Why? Because other than the Edge CTS2 monitor, the interior is about as stock-looking as it comes. Sure, I could limo tint the windows so no one could see inside, but instead I decided to tackle the interior with the same aggressive approach I've taken with the rest of the truck.



TURN IT UP

The stock stereo stared back at me every morning when I climbed in my truck so that's why it was the first to go. I had some ideas of what I wanted to do that included Pioneer Electronics, but I wasn't sure exactly how to get started so I called up Phase 4 Stereo in Idaho Falls, Idaho.

Owner Dave Bailey, Jr. now runs this full electronics shop after taking over the family business from his father



The Pioneer AVIC-5100NEX unit comes with a truck load of standard features and goes well beyond just playing music.



Even built-in navigation is included with this system from Pioneer Electronics.



Using Apple CarPlay I can listen to the text message and verbally reply without ever picking up my iPhone. Now you can text and drive with a clear conscience.



The microphone just above the driver's side visor easily picks up voice commands so I can call and receive phone calls without ever touching my cell phone.

Dave Bailey, Sr. in 2000. The father and son team started Phase 4 Stereo in 1972 and from day one has been an exclusive Pioneer Electronics dealer for

When the truck is in drive, you can watch the same movie on the Pioneer front screen that is playing on the drop-down DVD player in the back.



southeast Idaho. Today, the local shop is also a Pioneer distributor for Idaho, Wyoming and Montana.

"We used to carry other stereo decks besides Pioneer, but I like to only do things once," said Richard Edwards who has been installing systems for Phase 4 Stereo since 1996. "They're rock solid with a bulletproof setup so that's why we only sell Pioneer decks now and I don't have to worry about them coming back."

The Phase 4 Stereo team, which includes Rod Wallace (25-plus years), Jim Brown (35-plus years) and Dave Bailey, Jr., put together a list of recommend products for our build that included the Pioneer AVIC-5100NEX unit with new in-dash navigation and a 6.2-inch touchscreen display. Pioneer's NEX (Networked Entertainment eXperience) line of receivers feature Bluetooth, USB/Aux ports, as well as a DVD player, just to name a few of the highlights. It also includes Apple CarPlay which is the smarter and safer way to use your iPhone while driving. Yes, WHILE driving! Apple CarPlay allows you to make calls, use maps, and listen to music as well as access text messages with just a word or a single touch. I had no idea all of this technology was available today.



I was as plugged in as an Amish toaster before Phase 4 Stereo hooked me up. Now I can verbally send and receive text messages while keeping my eyes on the road where they belong.

My entire system is centered around the Pioneer AVIC-5100NEX unit, which before contacting Phase 4 Stereo was the only thing I was sure of. I also added two 6- by 8-inch 4-way speakers in the doors, an amp, as well as a large subwoofer in the back—all manufactured by Pioneer.

For the kiddos, a drop-down 11.2-inch DVD screen from Power Acoustik was also installed. As an added bonus, since I'd rather listen to my music than my kid's movies, we went with HP-11S



Hidden behind the passenger seat is a large subwoofer and I can't believe how clean and pure the sound is in my truck. Phase 4 Stereo did an amazing job with not only recommending top-quality components, but also installing the complete sound system in my truck.

headphones from Power Acoustik that feature an adjustable swiveling over-the-ear pad to reduce ambient noise. Each HP-11S headphone has independent volume control, and also an auxiliary audio input to directly connect an iPod or other device with headphone output. Plus a hardened plastic carry case is included for protective storage.

KATZKIN

With the sound system complete thanks to the great install by Phase 4 Stereo, it was time to address the next biggest glaring issue and that was the seats. After years of viewing SEMA vehicles, there seems to only be one name when it comes to interior seating and that's Katzkin Leather. They're

considered the best of the best by most and that's why Katzkin was my first and only call. Katzkin is a privately held company which designs, manufactures and distributes custom leather interiors for virtually any vehicle on the road today. This is one of those companies that is constantly expanding its line of leather interiors, which now includes over 3,000 vehicle applications. Since 1986 the company estimates it has outfitted almost two million vehicles!

Project Manager Angel Hernandez was very helpful and mailed me a large sample folder with all the different colors, textures and patterns so I could customize my seats. After much deliberation I went with the Two-Tone Combo design with Factory Matched Gray and



Hidden behind the stock door panel is one of two Pioneer 6- by 8-inch speakers. Spoiler alert! Jim's Upholstery is currently modifying the interior including the door panels, which will be unveiled in the last installment of this project truck series.

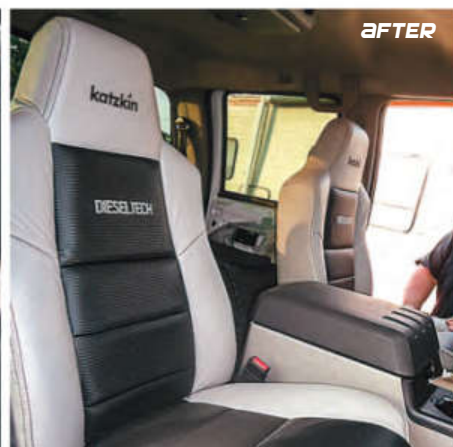


a Carbon Shadow insert with black stitching. As an added touch I was able to get our Diesel Tech logo stitched in the seatbacks as well. It's these little added touches that I feel make the difference when building a truck. And of course I wanted the Katzkin logo as well. After all, they are the official leather supplier for the Ford Motor Company as well as other top companies.

Katzkin's leather interiors are manufactured in Montebello, Calif., and are backed by a three year / 36,000 mile warranty so I know they're built to last.

JIM'S AUTO UPHOLSTERY

I'm a fan of do-it-yourself type projects, but I must admit I don't know a lot about interior seating so I decided to reach out to an authorized Katzkin dealer to do the install. Jim's Auto Upholstery is just across the state from us in Nampa, Idaho, and I've heard





Here Ivan Sein works on the back seat, while Mark McCartor keeps it steady.



Jim's Auto Upholstery began in 1950 and thanks to hard-working guys like Richard Bean, the company continues to grow.



Here Richard begins to remove the passenger seat and he also discovers, based on the crumbs, that people do occasionally eat in the truck.

nothing but good things about this business that was established in 1950 by Jim Dossett. The original owner retired in 1989 and passed the business down to his grandson Rodney Bean who today with his wife, Debbie, still own and operate the shop. With over 30 years of experience in the upholstery business, Rod has surround himself with a quality crew including Ben Zahller,

Richard Bean, Ivan Sein and Mark McCartor, so I knew our project truck was in good hands.

After installing the Katzkin seats, the shop took me aside and talked me into taking the truck to a whole new level of customization. Ben can't help it; he comes from the custom car world with an impressive resume of extremely detailed projects and he had some specific ideas for what he could do to my truck. These guys are the best and I couldn't turn down the opportunity to have them work on my truck some more. I was up against a deadline so those details will have to be unveiled in the final series of this build.

Ben Zahller is always looking for ways to customize the vehicles he works on and he has the talent to back it up. Here he checks the wiring before getting started on his next creative idea.





888.99.DIESEL
ORDER ONLINE OR CALL TOLL FREE
DIESELPPOWERPRODUCTS.COM

888.99.DIESEL
ORDER ONLINE OR CALL TOLL FREE
DIESELPPOWERPRODUCTS.COM

DON'T GET STUCK WITH STOCK!
#stocksucks

ULTIMATE ADVENTURE
2015
OFFICIAL RETAILER



AMERICA'S DIESEL SUPERSTORE



BEFORE



AFTER

GETTING HITCHED

We're not overlooking any details, so before I took our project truck to Jim's Auto Upholstery I picked up a hitch from Andersen Manufacturing. Its Rapid Hitch has to be one of the most popular hitches on the market today and the 6-inch drop combo seemed like the ideal fit for our build. It has a towing capacity of 8,000 pounds with the 2-inch ball and 10,000 pounds with the 2 and 5/16-inch ball and that's plenty for what we plan to tow. The polished aluminum won't rust, chip or peel and you can quickly adjust the height. Simply pull the pin, adjust, and then slip the pin back into place. It's really that easy.



And because nice hitches like this one tend to "walk away" these days,

we also added the BOLT series receiver lock. What makes this lock unique is it can be permanently set to any key including your truck key, so you don't have to carry additional keys with you. I'm a big fan of BOLT locks and I continue to use several of its products—all of which are of course keyed to my truck key for convenience.



FINAL CHAPTER

We have a few surprises still left as we come to the sixth and final installment of our build that will go beyond what we've got planned with Jim's Auto Upholstery. We'll put the final touches to Editor's Pick as well as highlight the entire build in our next issue! **DT**



EDITOR'S PICK

SOURCES:

PART 5

Adrenaline Performance
208-357-5603
www.adrenalineperformance.net

aFe Power
951-493-7155
www.afepower.com

Air Lift
800-248-0892
www.airliftcompany.com

Alligator Performance
866-255-7212
www.alligatorperformance.com

Andersen Manufacturing
800-635-6106
www.andersenhitches.com

AnzoUSA
888-360-3696
www.anzousa.com

Autos 4 Less
208-552-5445
www.autos4lesscars.com

BD Diesel Performance
800-887-5030
www.dieselpowerperformance.com

Bestop
800-845-3567
www.bestop.com

Billet Badges, Inc.
760-744-0663
www.billetbadges.com

BOLT
877-251-8798
www.boltlock.com

Bullet Proof Diesel
480-247-2331
www.bulletproofdiesel.com

Bushwacker
800-234-8920
www.bushwacker.com

Compustar
www.compustar.com

Cooper Tire
800-854-6288
www.coopertire.com

Edge Products
888-360-3343
www.edgeproducts.com

FASS
866-769-3747
www.fassride.com

Fluidampr
716-592-1000
www.fluidampr.com

Hellwig Products
800-435-5944
www.hellwigproducts.com

HornBlasters
877-209-8179
www.hornblasters.com

Hostile Wheels
909-444-0854
www.hostilewheels.com

Jack's Tire & Oil
208-522-8111
www.jackstireandoil.com

Jim's Auto Upholstery
208-466-7233
www.jimsupholstery.com

Katzkin
888-528-9546
www.katzkin.com

KYB Americas Corp.
www.kyb.com

LEDGlow
877-533-4569
www.ledglow.com

MBRP
Performance Exhaust
888-636-7223
www.mbrp.com

Night Owl Window Tinting
208-716-3352
www.nightowlwindowtinting.com

OPTIMA Batteries
www.optimabatteries.com

Pace Edwards
800-338-3697
www.paceedwards.com

Phase 4 Stereo
800-457-2881
www.p4stereo.com

Pioneer Electronics
800-421-1404
www.pioneerelectronics.com

Power Acoustik
323-722-3333
www.poweracoustik.com

PowerTech Diesel
208-261-2304
www.powertechdiesel.com

Rigid Industries
480-655-0100
www.rigidindustries.com

Road Armor
877-294-2726
www.roadarmor.com

Robinson Auto Glass
208-525-3230
www.robinsonautoglassexpert.com

RockAuto
866-762-5288
www.rockauto.com

Royal Purple
888-382-6300
www.royalpurple.com

SCT
407-774-2447
www.sctflash.com

Status Grilles
775-677-8511
www.statusgrilles.com

SuspensionMAXX
888-629-9226
www.suspensionmaxx.com

Swamps Diesel
866-595-8724
www.swampsdiesel.com

T-REX Grilles
951-270-5388
www.trexbillet.com

Thoroughbred Diesel
866-681-0115
www.thoroughbreddiesel.com

UnderCover Bed Covers
866-900-8800
www.undercoverinfo.com

Warn Industries
800-543-9276
www.warn.com

WeatherTech
800-441-6287
www.weathertech.com

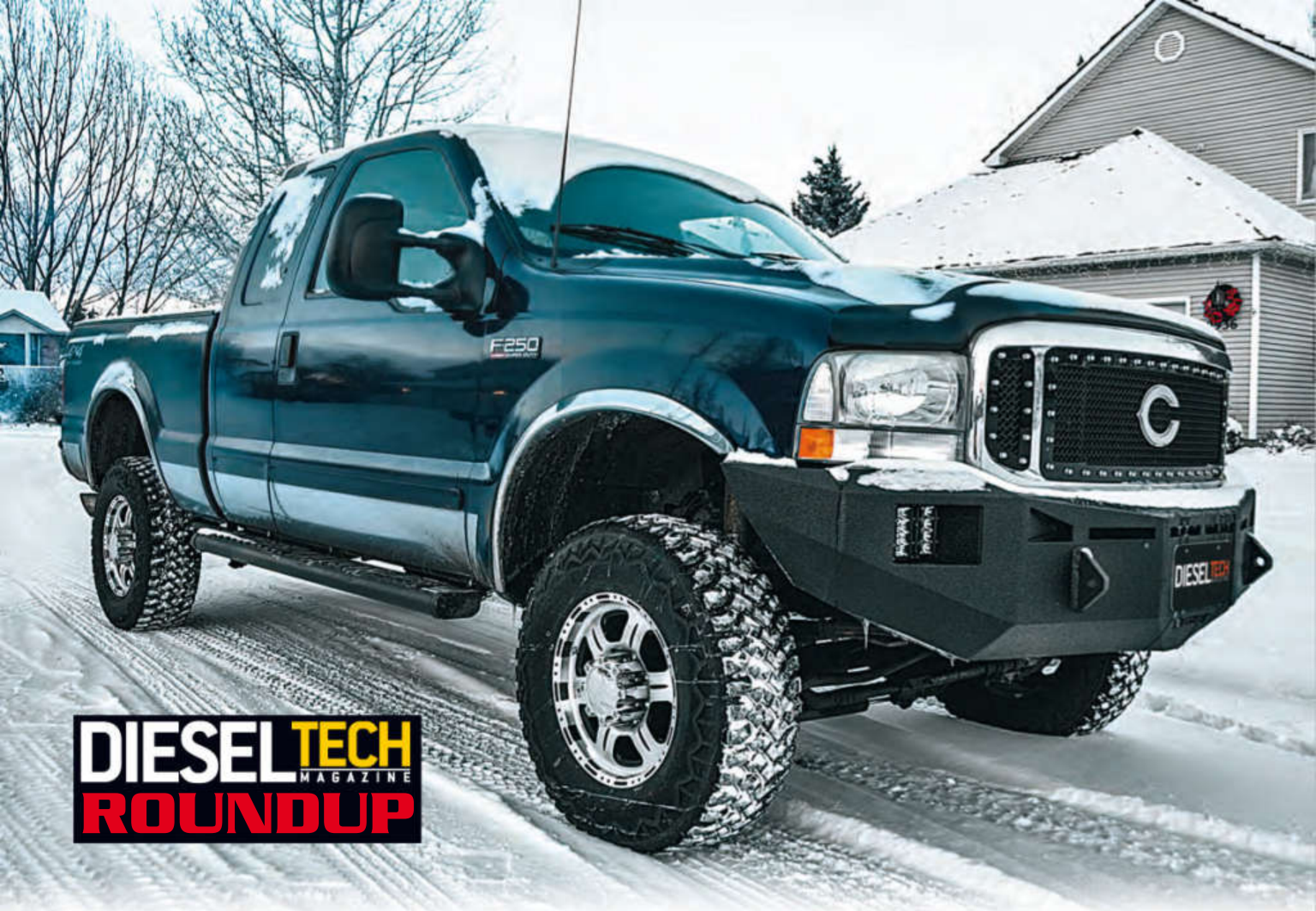
WrapWorld Ink
208-323-2453
www.wrapworldink.com

A woman with blonde hair is leaning against the large, treaded tire of a red truck. She is wearing a blue t-shirt with a large 'AMERICAN FORCE' logo and a camouflage baseball cap with a smaller 'AMERICAN FORCE' patch. The truck's body is red and has '2500 HD' written on it. The overall theme is rugged and patriotic.

AMERICAN FORCE

2500 HD

CHECK OUT OUR NEW APPAREL COLLECTION ONLINE!
www.americanforce.com/shop



DIESEL **TECH**
MAGAZINE
ROUNDUP

Changing Seasons

By Trevor Mason

How to prepare for Old Man Winter

It's hard to believe that it's that time of year again, but here we are with Old Man Winter breathing down our necks. As they might say on a popular TV show these days, winter is coming. Thankfully, winterizing your truck doesn't entail building a giant wall of ice to keep the zombies out. But there are some things you should do now, before it gets too cold out, that will ensure your truck stays in tip-top shape over the cold winter months.

Engine Heaters

As we all know, diesel fuel needs a much higher temperature to fire than regular gasoline, so starting a diesel in the winter can be a real hassle if you're not properly equipped. One of the best ways to make sure your truck fires up reliably in the morning is to get a heater for the engine area. I say "area" because there are various points on the engine that can be heated that will achieve your desired result. Additionally, some vehicles will have some of these features installed from the jump, while others you'll have to add yourself after the fact. Let's look at three different kinds of heaters.

Block Heaters

Most diesels will come pre-equipped with a block heater. You know the one: that little electrical cord dangling out of the front of your grille like a stray bit of food on your chin. You simply plug

NEW

**Updated Application Guide at
alliantpower.com**

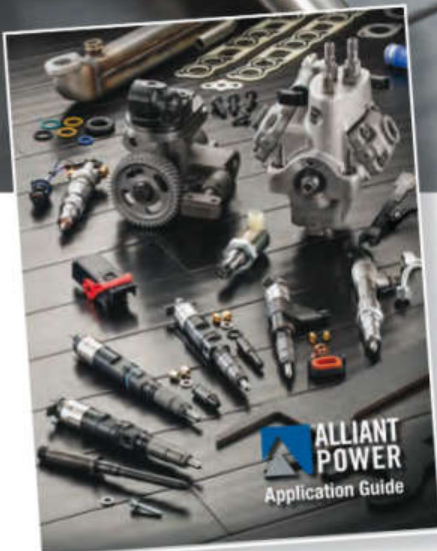
*U.S. Patent
No. 8,756,813*

**Ford® ▪ Navistar®
GM® ▪ Dodge®/Cummins®**

**100+ New
Part Numbers!**



*Check Out the Alliant
Power YouTube Channel.*



P.O. Box 7485 ▪ Madison, WI 53707-7485 ▪ P: 866.283.1785 ▪ F: 800.237.5984 ▪ alliantpower.com

Follow Us On:



the cord into a heavy-duty electrical cord and run it to a 110-volt outlet that can take a three-pronged plug. If you're ever on the road, it's a good idea to keep a cord rolled up under the back seat so you can tap in at your hotel; just make sure the cord is at least 50 feet, since it can be a long ways from your vehicle to the nearest outlet. In colder climes, such as Alaska for example, outlets are built right into parking meters sometimes.

If you're getting your own, you need to make sure the wattage of the heater you're looking at matches the size of your engine and is rated to deal with the climate you expect to be facing. Zerostart makes a wide variety of heaters for pretty much any vehicle. There are literally hundreds of options, so you just need to find the one that matches your truck. These heaters attach to the engine in place of a freeze plug or pipe plug. The heating element must be fully immersed in coolant for it to function properly. It behaves similarly to the filament in an incandescent light bulb and heats up the coolant surrounding it. Zerostart's heaters can be found at most auto parts stores or online from retailers such as Amazon or eBay. Visit their site (www.phillipsandtempro.com) to find out more.

Battery Warmers

Sometimes even when you use the engine block heater, your truck will still refuse to start. This is usually a sign that your battery is also too cold. Truck batteries can lose up to 35 percent of their power at 32 degrees Fahrenheit (that's 0 degrees Celsius for you metric system advocates). At 0 degrees (about -18 degrees Celsius) they can lose as much as 60 percent.

There are two ways to fix this: buy a new battery with more capacity (as long as there's room under the hood for it), or get a battery warmer. There are two kinds of warmers that are most widely used, both of which plug into a 110-volt socket. A so-called "hot-plate" warmer functions just like it sounds: it slides under the battery and simply keeps it warm from underneath like a coffee warmer or, uh, a hot plate.

Wolverine Heaters makes reliable battery heaters that work for pretty much any vehicle. The Model BH-60 is a 60-watt "hot plate" heater that comes in either a 120-volt or 240-volt variant. It comes with a 6-foot cord and covers an area of 8.5 by 5.5 inches.

The other style is sometimes referred to as an electric blanket-type and simply wraps around the entire battery: this version uses more current due to its larger coverage, which in turn deals with extremely low temperatures better than the hot plate iteration.

Zerostart and Kat's both make battery blankets that fully wrap around the battery. Kat's is a brand that makes heaters for pretty much any engine component, and are the only company featured here that makes an application for the three types we've listed. Check them out at www.fivestarmanufacturing.com.



Oil Warmers

One way to keep your oil warm is with a heated dipstick, but our research showed that these were pretty unreliable, so we'd advise you to steer clear. Instead, look into a heated pad that you stick to the oil pan itself.

These are far more reliable and provide more heating to greater surface area. For example:

Wolverine Heaters makes a whole slew of heaters for pretty much any engine imaginable (but maybe not an arc reactor). The model shown—Model 16CSACE—is a 250-watt engine oil heater, but can also be used to heat the reservoir and hydraulic fluid. It measures 3.75 by 4.25 inches, fits 3/4- to 2-ton trucks, and heats between five to 13 quarts of oil or 6.25 to 16 gallons of hydraulic fluid. As always, check to make sure the heating pad you get will fit where you're putting it and will provide adequate heating for your specific application. Visit www.wolverineheater.com to know more.

Fuel Additives

Okay, now that you've gotten your vehicle nice and toasty from being plugged in all night, what else can you do to make sure the fuel flows properly?

As we mentioned at the beginning, diesel needs a higher temperature than gas to fire properly. Part of that is because if diesel gets too cold, it starts to wax or gel. This means that it begins to solidify into a partially crystalline state.

This state will cause the fuel to clump up and become unable to pass through the fuel filters and injectors. What can you do to stop this?

Unlike other fuel treatments that can be largely dismissed as snake oil, diesel additives help prevent the fuel from gelling at low temperatures by actually lowering the fuel's cold filter plugging point. The CFPP is the lowest temperature at which diesel fuel will still pass through a filter without clogging.

Lucas Oil's Anti-Gel Cold Weather Diesel Treatment gets this job done with flying colors. It's safe to use on both ultra-low-sulfur diesel and bio-diesel fuels. (www.lucasoil.com)

Stanadyne also makes an additive that will reduce the CFPP of your fuel by up to 25 degrees. One 8 ounce bottle treats up to 30 gallons of fuel.

(www.stanadyneadditives.com)

Winter Coolant

This one is going to be pretty simple: keep an eye on things and you should be fine. The antifreeze/coolant that you're currently using is fine, and there's no special winter-only antifreeze you should be using. What you should be doing is proper maintenance to ensure there aren't any problems in your engine.

The biggest difference between a gas engine and a diesel engine, at least as far as your antifreeze goes, is the existence of cavitation in diesel engines. Cavitation refers to the formation of vapor cavities in a liquid when that

DIESEL'S



**\$10 REBATE
OFFER**

On the combined purchase of Stiction
Eliminator and Diesel Extreme.
See TSC stores for details

DYNAMIC DUO

POWER!



Stiction Eliminator Oil Additive
Scrub the OIL system
Stiction Eliminator 2 qt bottle
SKU # HSS64Z





Diesel Extreme Fuel Additive
Scours the FUEL system
Diesel Extreme 2 qt bottle
SKU # P040464Z

Stiction in your oil and fuel causes excessive smoke, rough starts, bucking and chugging, hesitation and lower MPG. Scrub away STICTION, internal diesel injector deposits (IDIDs) and moisture from your fuel and oil systems with Hot Shot's Secret products.

- Add STICTION ELIMINATOR to your oil
- Add DIESEL EXTREME to your fuel

Restore your diesel's original performance power with the Dynamic Duo from Hot Shot's Secret.

 **HOT SHOT'S SECRET STICTION ELIMINATOR WAS ADDED ABOUT A WEEK BEFORE I BOUGHT DIESEL EXTREME. MY DIESEL NOW HAS THE POWER I NEED!**  **CECIL N.**

HotShotsSecret.com 1 800 341 6516



liquid is subjected to rapid pressure changes. That means that as the fuel combusts, bubbles form that shake the inner working of the engine. So in a diesel engine, where the combustion is much more violent, you get cavitation, which is really hard on the engine. During the combustion cycle, air bubbles can attack the cylinder with a force of up to 60,000 psi.

Most diesel trucks have filters in place for the coolant systems that include some amount of nitrite, which is a material that helps combat cavitation bubbles. Also, most antifreezes these days are designed to combat the bubbles directly. To make sure you always have the proper amount of coolant and that your filters have the right amount of nitrite present, you should follow your manufacturer's recommendations for coolant changes. For standard green antifreeze, that's going to be about every two years or 30,000 miles. For extended-life coolant, it's going to be about every five years or 100,000 miles. That said, it's a good idea to check your coolant every six months just to be safe.

Winter Is Coming

Now you know everything you need to know about winterizing your truck. Whether you're in the farthest reaches of the Arctic, or simply stuck in Idaho, North Dakota, or Wisconsin for the winter, you should be taken care of. If you do happen to come across any of those snow zombies, though, I don't know what to tell you.

Say Goodbye To Stiction

Huh? Stiction? Is that really a word? Well, it is now, just like emoji, click-bait, and photobomb. "Stiction" is a portmanteau (that means "two words smashed together") of "static friction." It refers to the point in a range of motion where the friction caused by two objects touching causes the motion to stop. As you might guess, proper lubrication of engine components alleviates

the problem.

Hot Shot's Secret has developed a special formula to combat stiction. You simply add the Stiction Eliminator at your next oil change and the Diesel Extreme to your next fuel fill-up, then drive your truck for 1500 miles to get them thoroughly into their respective systems. Hot Shot's Secret guarantees they'll fix your stiction problems or your money back.

(www.hotshotsecret.com) DT



"POWER LUBE PACKAGE" DON'T TOW WITHOUT IT!

Now Available for the NV5600, the "Power LubePackage" increases lubrication in critical areas as well as increases lubrication capacity.



SIMPLY THE BEST BUILT TRANSMISSIONS IN THE INDUSTRY!

COMPLETE STOCKING WAREHOUSE

- Transmissions
- Differentials
- Huge Clutch Line
- Transfer Cases
- New & Used Parts
- High Performance to OEM Replacement Clutches and Flywheels
- Repair of All 1-Ton and Under Standard Transmissions

Fort Worth, Texas | 817.625.7109

Toll-Free: 800.783.8726

STANDARDTRANSMISSION.COM



THE OFFICIAL SEMA SHOW AFTER-PARTY

GET TICKETS NOW

FRIDAY, NOV. 6 • 3:00 PM-10:00 PM
LAS VEGAS CONVENTION CENTER, GOLD LOT

500+ BOOTH AND FEATURE VEHICLES ON DISPLAY.
DRIFTING • CELEBRITIES • MUSIC • FOOD TRUCKS

WWW.SEMAIGNITED.COM

FOR 30% OFF ADMISSION, USE PROMO CODE: DTM30

SEMA
IGNITED
OPEN TO THE PUBLIC

SPONSORED BY:



TECH CORNER

WITH **Levi**

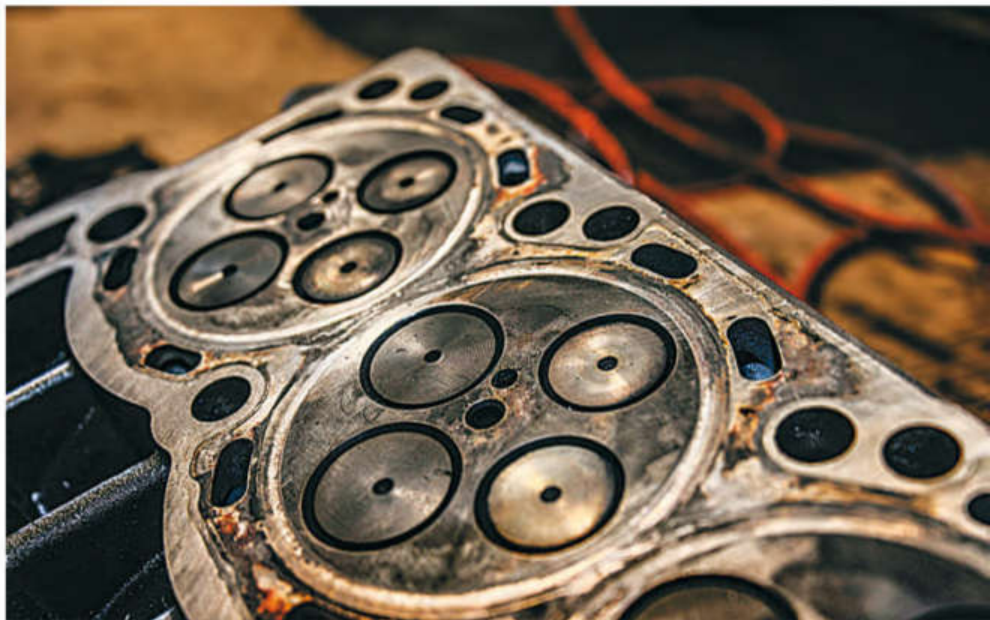
Ford Part 2: 7.3L Power Stroke Rebuild

By Levi Perkins

In the September issue of *Diesel Tech*, the 7.3L Power Stroke engine rebuild Part 1 was covered. This included review of the engine removal, engine stand procedures, turbo inspection, and injector inspection. In this issue the remainder of the rebuild/teardown process will be reviewed.

Cylinder Head Removal

At this point a long block should be on the engine stand with bare heads and bare block. The injectors have already been removed as well as all of the upper components such as turbo and high pressure oil pump. All of the belt-driven components have been removed as well, such as the power-





removed next. This is where a good impact gun comes into place.

When removing a cylinder head it is important to work from the outside in when removing the bolts (the reverse torquing sequence of installing the

head), although I have never distorted a cylinder head when the head bolts are removed starting at one end and working to the other. Once the head bolts are removed, they could be reused but should not be. It is cheap

Advertisement for RockAuto.com. The ad features a collection of car parts: a piston (✓Yes), an alternator (✓Yes), a red toy car (xNo), a black hose (✓Yes), a yellow and black filter (✓Yes), and a side mirror (✓Yes). A central graphic says "Every Filter Type!". Below the parts, a list of benefits is shown: ✓Reliably Low Prices, ✓Easy To Use Website, ✓Huge Selection, and ✓Fast Shipping. The website address www.rockauto.com is listed. The RockAuto.com logo is prominently displayed with the tagline "ALL THE PARTS YOUR CAR WILL EVER NEED."

steering pump, water pump, crank balancer, alternator and vacuum pump if it is equipped with such. Once the valve covers are removed, the rocker levers and bolts should be removed next. It is wise to pull the pushtubes out and check to see if any are bent. It pays to have a nice 12- by 12-inch piece of glass or even better, a piece of marble. Then take the pushtubes and roll them across the flat glass to see if they are bent. If a pushtube bends it becomes not only shorter, but also very weak. I always inspect the ends of the pushtubes as well to see if they are wearing in a uniform circle and have no abnormalities. Never leave the push tubes in the block when pulling the head as this can often bend one of them. The head bolts need to be

Advertisement for ThrottleDownKustoms. The ad features a collage of various customized pickup trucks, including a blue truck, a yellow truck, a red truck, and a silver truck. A speedometer graphic is overlaid on the image with the text "ThrottleDownKUSTOMS". The website address www.SecondWindPerformance.net is visible on one of the trucks. At the bottom, the phone number (406) 374-2285 and the website ThrottleDownKustoms.com are listed.

insurance to purchase new head bolts or aftermarket head studs when doing a full engine rebuild. The engine stand should be turned so the cylinder head is facing straight up. Don't remove all the bolts on a head with the engine straight up and the cylinder head on an angle. When you go to lift the cylinder head up off the block you want to be lifting straight up so you do not smear the head off the block and risk the chance of scratching the mating surface of the head. The same head removal procedure is the same for both heads on the Power Stroke engine. The cylinder heads are not that heavy, but it is a good procedure to use a lifting stand or cherry picker to remove them. Once they are suspended in the air a bench needs to be cleared and a piece of cardboard or thick foam placed down for the head to rest on. Give yourself plenty of room so the head can be turned over and inspected.

Cylinder Head Inspection

Prior to the inspection process on a cylinder head or any engine component, it pays to put the head in an automatic parts washer. If there is not a washer available then it doesn't hurt to steam clean the head with a heated pressure washer. The worry of rust stops people from using heated water on engine parts, but can be avoided if the parts are immediately dried after getting washed. It is very hard to see imperfections, cracks, and or nicks on surfaces when the head is filthy. If all else fails and no pressure washer is available then brake cleaner and a wire brush works too. Just do it in a well-ventilated area. Once cleaned I always remove the valves and measure the valve guide's internal diameter. Then I look at the actual valve seat in the head and the valve seat on the valve. If they are dish-shaped or have corrosion on them, they will need to be ground or replaced. The valves should be replaced if they are dish-shaped in the seats. If they are ground they will usually not have the proper amount of valve recession when finished. The valve springs can be upgraded at this time

with stiffer ones or placed on a valve spring tension stand. The valve springs can then be compressed to a certain height and checked for the proper tension. This is a critical step in the process. If old valve springs do not have the tension they need they will have a hard time sealing compression and also will slow return rates in the cylinder head when the engine is running at high rpms. One of the most important parts of the cylinder head inspection process is that of the mating surface. The 7.3L Power Stroke utilizes a relatively short cylinder head in length compared to that of the 5.9L/6.7L Cummins. It is a cast iron head so it also differentiates from the Duramax aluminum head. In short, the 7.3L Power Stroke heads are difficult to warp (but it can be done). The mating surface should be checked for scratches, wear from the fire rings, cracks and warpage. The surface must be very clean to check each one of these areas. I like to take a piece of 3-by 3-inch square stock and wrap it in a scotch-brite pad and go back and forth length wise on the head to clean it and put a nice surface on it. Then it is ready to put the straight edge on it and slip a feeler gauge underneath it to check maximum warpage. If the head checks out good then you can move on to the next step. If it is warped then it needs to be resurfaced at a machine shop. While the heads are at the machine shop it doesn't hurt to resurface the exhaust flange ports, as this is a metal-to-metal seal with the exhaust manifolds. The cylinder heads should also be pressure checked for cracks. Another great method to check for cracks is the magniflux method. The Power Stroke cylinder heads incorporate injector "cups" which hold the injectors in the head and provide a great sealing surface for the injector o-rings. At this time it is good practice to replace them. They do require special tools to remove them and a special drive to install them. If all of this has been completed, the heads are ready for installation.

Short Block Teardown

At this point all that is on the engine stand is the short block. The block, pistons, rods and crankshaft need to be disassembled and inspected. The

pan should be removed, exposing the crankshaft and rods. The low pressure oil pump can be removed from the front of the crankshaft as well if it was not done already. Remove each rod nut and cap, paying particular attention to what order they came off. I like to have the engine upside down on the engine stand for this step and then I can push the pistons out through the bottom. It is important not to use a steel hammer on the rod ends when pushing the piston out. The steel hammer can mar up the end of the rod where the bearing rides. A polyurethane blow-molded hammer works great. The long handle will not mar up the bottom of the piston or rod end. Once the pistons are removed, the crankshaft main caps and bearings



| ADVERTISER INDEX | |
|--------------------------------------|--------|
| ADVERTISER & WEB ADDRESS | PG. # |
| Alliant Power..... | 49 |
| www.alliantpower.com | |
| Alligator Performance..... | 21 |
| www.alligatorperformance.com | |
| American Force Wheels..... | 15, 47 |
| www.americanforcewheels.com | |
| ATS Diesel Performance, Inc..... | 64 |
| www.atsdiesel.com | |
| BD Power..... | 29 |
| www.dieselpower.com | |
| Diesel Performance Parts, Inc..... | 8 |
| www.dieselpowerparts.com | |
| Diesel Power Products..... | 45 |
| www.dieselpowerproducts.com | |
| Dieselsite C/O Riley Industries..... | 16, 17 |
| www.dieselsite.com | |
| Fluidampr..... | 61 |
| www.fluidampr.com | |
| Ford Performance Specialists..... | 35 |
| www.fordspecialists.com | |
| G & R Diesel..... | 12 |
| www.grdiesel.com | |
| Geno's Garage..... | 59 |
| www.genosgarage.com | |
| Hot Shot's Secret..... | 51 |
| www.hotshotssecret.com | |
| Hypermax Engineering..... | 58 |
| www.gohypermax.com | |
| Injen Technology..... | 33 |
| www.injen.com | |
| KT Performance..... | 20 |
| www.ktperformance.net | |
| Mag-Hytec..... | 36 |
| www.mag-hytec.com | |
| Merchant Automotive..... | 61 |
| www.merchant-automotive.com | |
| MG Industries, Inc..... | 12 |
| www.mean-green.com | |
| MKM Customs.com..... | 32 |
| www.mkmcustoms.com | |
| Pacific Performance Engineering..... | 62, 63 |
| www.ppediesel.com | |
| Power Driven Diesel..... | 11 |
| www.powerdrivendiesel.com | |
| Rare Parts, Inc..... | 7 |
| www.rareparts.com | |
| Red Line Synthetic Oil Corp..... | 41 |
| www.redlineoil.com | |
| Rev-X Products..... | 59 |
| www.revxoil.com | |
| Rock Auto, LLC..... | 55 |
| www.rockauto.com | |
| SCT..... | 27 |
| www.sctflash.com | |
| SEMA..... | 53 |
| www.semashow.com | |
| Silver Lake Mfg..... | 58 |
| www.sledecks.com | |
| Sinister Diesel..... | 2, 3 |
| www.sinisterdiesel.com | |
| Smeding Diesel..... | 13 |
| www.smedingdiesel.com | |
| South Central Diesel..... | 61 |
| www.scdperformance.com | |
| Stanadyne Fuel Additives..... | 37 |
| www.stanadynesadditives.com | |
| Standard Transmission & Gear Co..... | 52 |
| www.standardtransmission.com | |
| Throttle Down Kustoms..... | 55 |
| www.throttledownkustoms.com | |
| Transfer Flow, Inc..... | 6 |
| www.transferflow.com | |
| Ultimate Transmission..... | 57 |
| www.ultimatetransmission.com | |
| Xtreme Diesel Performance..... | 4, 5 |
| www.xtremediesel.com | |



DIESEL TECH

MAGAZINE

FOLLOW US!

on Instagram

- TRUCK BUILDS
- PHOTOS
- GIVEAWAYS





Ultimate Transmission
208-631-2133 • BOISE, IDAHO • 208-830-6449



THE ULTIMATE

CUSTOM BUILT TRANSMISSIONS FOR
HEAVY DUTY APPLICATION FAT
SHAFTS, SINGLE AND TRIPLE DISC
CONVERTERS, TORQUE CONVERTERS,
COOLANT KITS, AND VALVE BODIES



FREE

- Estimates
- Diagnostic Road Test
- Towing on Major Repairs




www.ultimatetransmission.com

220 W. 37th St.
Garden City
208-631-2133



can be removed. Again it is nice to have a good impact gun for this. It is amazing how smelly the main bolts will be when they come out due to the cooked engine oil down around the threads! Again the engine needs to be upside down on the engine stand for this process. Next the crankshaft can be lifted out of the block utilizing a cherry



picker and a soft tow strap. At this point the only component left in the block is



the camshaft. The cam can be removed after the retainer flange is removed. While pulling the camshaft from the front it is important to not scratch the lobes on the block. The cam is relatively long and will have to be gently slid out of the cam journals in the block.

Inspection Of Short Block Components

Camshaft

Let's start with the camshaft. If the camshaft is to be reused, it needs to be visually inspected for lobe wear and hard facing wear. If it checks okay visually, a micrometer can be used to check lobe profile height and overall outer-base circle diameter. Both the intake and exhaust lobes have a specific profile height.

Block

The block is one of the most critical parts of the engine rebuild. I like to clean the surface of the block and run a straight edge over it with a feeler gauge and check for block deck straightness. If this is good, the cylinder should be cleaned and inspected. The more miles an engine has on it then the larger the taper in the cylinders will be. Taper can be checked with a taper gauge or a telescoping snap gauge and micrometer. The most reliable method is the taper gauge. If taper is excessive, the engine will need to be bored. Often times if the cylinder walls have lost their initial cross hatch honing pattern at the top of the cylinder, the

208-623-6601
sledecks.com



SILVERLAKE MANUFACTURING
MADE IN THE USA

Professionally built decks and beds for the use of:

- QUADS
- SLEDS
- BIKES
- INFINITE RANCH USES





DIESEL POWER

No machining required
Compatible with 18mm & 20mm dowels
Unique design steel gasket body - provides back-up for stainless steel combustion ring
Bolt and stud kits available to complete the job
Other gasket designs available for 1000+ HP applications

FORD/NAVISTAR 6.0L & 6.4L
HIGH PERFORMANCE
WIRE RING
CYLINDER HEAD GASKET



WWW.GOHYPERMAX.COM
(847.428.5655) 255 EAST ROUTE 72, GILBERTS, ILLINOIS 60136



taper may be excessive. If block has been re-bored and hot tanked at a machine shop, the new cam bushings can be installed.

Crankshaft

A micrometer can be used to check wear on the crank main journals and rod journals. If they are within specifications then standard main and rod bearings can be used. If they are worn, the crankshaft will need to be turned and undersized bearings used.

Rods

The rods can have piston pin bushings pressed into them if they are going to be reused. Rods should also be inspected for the bearing surface being clean and true to accept the new bearing. The old bearings can be a great way to see if the rods are in good shape. If the bearings are worn even then the rods can usually be reused. Rods can be checked for micro cracks. The 2001-2003 Power Stroke engines utilized powdered metal rods and the 1994-2000 engines utilized forged rods. The forged rods are preferred for higher horsepower and are stronger. The PM rods are risky to say the least.

This write-up is intended to aid the DIY person who is looking to rebuild a 7.3L Power Stroke. It is not comprehensive nor does it cover the reassembly process. It is intended to fill in the gaps which a shop manual may not describe in great detail. It can also help the technician to understand which components can be reused and what should be inspected. **DT**



About The Author

Levi Perkins is the head instructor for the diesel program at the College of Southern Idaho located in Twin Falls, Idaho. The diesel program has had 100 percent placement in the last three years and provides future diesel mechanics and engineers a bright future in the diesel industry.

For more information call **208-733-9554** or visit www.csi.edu. **DT**

REV X SMOKING THE COMPETITION
WITH PRODUCTS THAT WORK!
 HIGH PERFORMANCE OIL & FUEL ADDITIVES

www.revxoil.com

SAVE MONEY WITH OUR MONTHLY SPECIALS

SEPTEMBER
Save 10%
 Raid our tool bin and save on all of our specialty tools.
 Offer expires 9/30/2015

OCTOBER
SHOCK TOBERFEST
Save 10%
 on the purchase of two or more shocks during October.
 Offer expires 10/31/2015

Cummins
TURBO DIESEL
ECODIESEL

REQUEST OUR CATALOG
 Call us or visit our website to get our 48-page Summer 2015 catalog.

SEE OUR WEBSITE FOR '14-'15 RAM 1500 ECODIESEL PARTS & ACCESSORIES

GENO'S GARAGE

RAM TURBO DIESEL PARTS & ACCESSORIES
 1500 2500 3500 4500 5500
www.genosgarage.com
 TOLL FREE: (800) 755-1715 TECH: (770) 886-2500
 1150 Samples Industrial Drive • Cumming, GA 30041

FREE SUBSCRIPTION: This has become our favorite section. Real trucks, purpose-built on a paycheck budget. If you'd like to submit your truck for our Truck Next Door section, send your name, hometown and state and a description of your truck, along with a high-resolution photo, to trucks@DIESELTECHMAG.com. Remember, if your truck is published, you get a free one-year subscription to Diesel Tech.

Ryan Noble ▶ DE GRAFF, OH

My truck is a 2001 GMC 2500 4x4 with the LB7 Duramax motor. The front end has been lowered with torsion keys and the rear with a 2-inch lowering shackle. It has Nitro 420s all the way around with 20x12 TIS wheels, an all-leather interior, a roll pan, and the mirrors and front bumper have been color matched. Modifications include Fabtech tie rods, ARP head studs, an S&B cold air intake and EFILive tunes by Nobles Performance Diesel. The guys from Suncoast hooked us up with a 1056 torque converter and Gmax 5 transmission kit and it was built by Nobles Performance Diesel. It also has a Nobles Performance Diesel transmission brace, new stock injectors from Columbus Diesel, and a FASS fuel lift pump. In the future I'd like to add a compound turbo setup. This truck is used to having fun at dirt drags and quarter-mile racing.



Justin Clapp MAYFIELD, KY

This is my 2010 Dodge Ram 2500 Mega Cab. This Lone Star edition took me a lot of time and money to get it the way I want. There aren't many fourth gens I've seen leveled on 22x14s, so I wanted to be one of the first to pull it off. The truck features a 2.5-inch Rough Country leveling kit, black 22x14 Moto Metal 962s, 35x12.50x22 Toyo Open Country MTs, H&S tuned, 5-inch MBRP exhaust, 8-inch tip Pusher mega intake manifold, aFe stage 2 intake, and black headlights and taillights all color matched. Future modifications will include an upgraded fuel system with Air Dog and a bigger turbo, but I'm not sure what size yet. I also want to do Pusher intercooler piping. I'm also going to need some transmission work.

This is my daily driver. I also show it in truck shows or I'll race it in the dirt drags with some friends. I've had this truck for almost a year now and it was stock when I bought it. I got a lot of my ideas from *Diesel Tech* issues. It currently has around 500hp, but I plan on getting it around 700hp soon! I work in the locomotive industry and love to be around diesels.



Josh Wrubel ▶ YUBA CITY, CA

I have a white single cab 2004 F250 4x4 Regular Cab Long Bed 6.0L Power Stroke that I bought bone stock two years ago. I've always wanted a single cab Power Stroke ever since I saw the ones Mike Hallas built and how nasty they were. It's a fun little truck that can hold its own. I've added a lot to it including ARP studs, EGR delete, BPD water pump, S&B intake, XDP Coolant filtration system, No Limit fabrication hot and cold side piping, driven diesel regulated return, FueLab fuel pump with filter manifold built by Irate Diesel, Beans sump, RCD pushrods and valve springs, Gearhead ECM tuning, PHP atlas 40 FICM tune, Flight Fabrications traction bars, Mag-Hytec front and rear diff covers, 3.5-inch downpipe, 5-inch straight pipe, 7- by 36-inch old Skool fab stack, 22x14 fuel throttles, 305/40r22 Nitto 420s, Glowshift EGT, boost, fuel pressure and Trans temp gauges. Soon I want to add Holder's 250/100 hybrids, an s467.7 forged milled wheel, and a Warren Diesel-built transmission. My goal is mid 11s with the truck; if I can get there, I'll be very pleased. **DT**





DIESELTECH
MAGAZINE

First Ever

DYNO CIRCUIT

1. COMPETE
 2. EARN POINTS
 3. WIN THE BIGGEST PAYOUT IN DYNO HISTORY
- Check

www.northwestdynocircuit.com
for an event near you.

Order Today! Free T-Shirts while supplies last! Free Shipping on qualifying orders



WWW.SCDPERFORMANCE.COM

Where true diesel people come to receive excellent customer service and find endless parts to choose from!



Shop Today at www.scdperformance.com or call 1-800-228-8482



OVER 50,000 PARTS IN HOUSE

DURAMAX & ALLISON SPECIALISTS



MERCHANT-AUTOMOTIVE.COM 866-399-7169

PROTECT YOUR TRUCK



Photo Courtesy: Anthony Balans



Work or play, performance upgrades change destructive engine harmonics. Stock rubber dampers have their limits. Protect your truck with a Fluidampr performance diesel damper. Durable viscous silicone technology automatically adapts to your modifications, helping protect your engine from damaging torsional vibrations at all rpm and frequency ranges. Available for Ford, Dodge & GM/Chevy applications.



ph 716.592.1000 | fluidampr.com | Made in the USA | SFI 18.1 Certified



Innovations in diesel performance



All PPE Diff Covers and Trans Pans feature large inner and outer cooling fins for lower oil temps

HEAVY-DUTY FRONT AND REAR DIFFERENTIAL COVERS FOR GM, DODGE/RAM, FORD



Made in the USA from high-quality cast aluminum, PPE differential covers are extremely robust and will help keep your differential running clean and cool.

These covers will help to extend differential service life with their deep, cast aluminum inner and outer cooling fins for heat dissipation and a powerful Neodymium magnet-equipped fill plug to attract and hold harmful ferrous metal contaminants before they attack the bearings and gears.

PPE Covers Feature:

- All PPE covers have oil capacity greater than the factory installed pan
- All covers feature 1" stainless steel Neodymium magnet equipped fill plugs
- Available in Raw, Black, or Brushed finishes
- Viton O-ring sealed fill plugs
- Stainless steel Allen-head fasteners
- Rear diff covers feature 1/8" and 1/4" tapped accessory ports

Rear covers available for:

- 2001 and newer GM 2500/3500 trucks with 14 bolt - 11.5" rear axle
- 2003 and newer Dodge 2500/3500 trucks with 14 bolt - 11.5" rear axle
- 1986 and newer Ford (except Dually) F250, F350, Excursion with the 10.25" or 10.5" rear axle

Front covers available for (4x4 only):

- 2011 and newer GM 2500HD/3500HD trucks with 9.25" differential
- 2003-2015 Dodge/Ram 2500/3500 trucks

GM/Dodge
Rear Diff Cover



NEW Dodge/Ram
Front Diff Cover



GM Front
Diff Cover



Ford Rear
Diff Cover



All pans and covers available in these finishes



Raw



Black



Brushed

STANDARD DEPTH AND DEEP HEAVY-DUTY ALUMINUM TRANSMISSION PANS FOR GM AND DODGE/RAM

All PPE pans are constructed from high-quality cast aluminum and made in the USA.

Each pan features internal and external cooling fins. These cooling fins, combined with the aluminum construction, allow for reduced transmission oil temperatures. Cooler oil lubricates better which helps increase transmission service life.

Features:

- Available in Raw, Black, or Brushed finishes
- 1/8" and 1/4" NPT stainless temperature probe access ports
- 1" stainless steel, Neodymium magnet equipped drain plug
- Robust side ribs provide additional case strength
- Deep baffles prevent "sloshing" and also help transfer heat.

Pans available for:

68RFE: 2007.5-current Ram Trucks with the 6.7L Cummins

GM Allison DEEP Trans Pan: 2001-2015

Also available in standard depth

Dodge DEEP Trans Pan:

1966 to 1989-36RH, 37RH
1989 to 1995-46RH, 47RH
1996 to 2001-46RE, 47RE
2002 to 2007-48RE
All 727 transmission bodies

NEW Ram
DEEP 68RFE
Trans Pan



GM Allison
DEEP
Trans Pan



PPE DEEP Pans
hold 3-4 quarts of
additional fluid for
a reduction of trans
oil temperatures



Dodge
DEEP
Trans Pan



GM Allison
Standard Profile
Trans Pan



Log-on to PPEdiesel.com
or call (714) 985-4825
today to learn more!



All PPE Trans Pans and Diff Covers come with a stainless steel drain plug that features a powerful Neodymium Magnet to pull ferrous metal from your oil.

Our drain plugs are machined from stainless steel with a 17mm hex fitting for easy install and removal.

PUT MORE STING IN YOUR SCORPION!



THE PERFECT "DROP-IN" REPLACEMENT FOR YOUR 6.7L FORD™



SCORPION
TURBO SYSTEMS



The new Scorpion Turbo Systems are the perfect replacement option for your 2011-14 Ford™ 6.7L diesel truck! Engineered and designed to be a perfect "drop-in" replacement for the old, stock turbo system, this system comes with your choice of turbochargers, the Aurora 3000 or the Aurora 4000. The Scorpion System also gives you better performance, providing lower EGT's, quicker spool times and increased horsepower vs. the OEM turbocharger. With a 45° housing, stainless steel components and all the parts you need, you have a flawless, easy install. The new ATS Scorpion Turbo System, the best way to put more sting in your Scorpion!

OTHER COOL PRODUCTS...

ATS PULSE FLOW EXHAUST MANIFOLDS

ATS Pulse Flow Exhaust Manifolds are a great factory replacement part and offer far less restriction than stock manifolds and up-pipes. Channel areas were increased resulting in a 26% increase in exhaust flow. Pulse Flow manifolds improve performance and increased reliability. Cast out of High Silicon Moly, these manifolds will run through heat cycles without fatigue, cracking, or warping.

Features Include:

- 5 Year Warranty
- Lower EGTS
- Faster response time and spool up
- Lower drive pressure
- Increased reliability

PulseFLOW
MANIFOLDS



**NEW FOR
DODGE 6.7L**

ATS ARC FLOW INTAKE

One of the simplest, easiest ways to improve the airflow and performance of your diesel truck. The ATS Arc Flow intake smooths airflow and gives the added benefits of higher horsepower and increased torque. The Arc Flow has a pre-tapped, shrouded, back side for the easy addition of inject-ables like nitrous or water/methanol or intake temp gauges! Features Include:

- Increased Horsepower
- Increased Torque
- Smoother Air-Flow
- Easy Installation



ARC FLOW
AIR INTAKE

ON SOCIAL MEDIA



ATS Diesel Performance sells replacement parts designed to improve a diesel engine's efficiency and reliability. Some states, specifically California, have strict regulations applicable to parts that you may legally use on your diesel truck. Be sure to review applicable municipal, state, and federal rules before you purchase and install an ATS product to make sure you are in compliance.

ATS also designs and manufactures certain parts for off-road and race use only. These parts are not intended for sale in any state, including California, where the items do not comply with local rules.

ATS
DIESEL PERFORMANCE

866-490-5573 ATSDIESEL.COM/DT